

FINAL

United States Air Force

Environmental Assessment



**Construction of Collocated Club
at Tinker AFB, Oklahoma**

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Finding of No Significant Impact: Construction of a Collocated Club, Tinker AFB, Oklahoma

The United States Air Force (USAF) has prepared an Environmental Assessment (EA) that evaluates the potential environmental and socio-economic impacts associated with the construction of a Collocated Club at Tinker Air Force Base (AFB), Oklahoma.

Description of the Proposed Action

The proposed action evaluated in the EA is the demolition of the existing Officers' Club, redesignation of use for the Enlisted Club, and construction of a new Collocated Club outside the Clear Zone and Accident Potential Zone (APZ) I. The site for the proposed action is located between the existing Officers' Club (building 5603) and Mitchell Avenue in the Community Development Area of Tinker AFB, Oklahoma.

Demolition of the Officers' Club will eliminate a structure from the Clear Zone and improve airfield operations and safety. The building housing the Enlisted Club lies partially within APZ I and will be converted to use as a golf club for the portion of the building outside APZ I and a storage/maintenance area for the portion of the building within APZ I. This change of use is compatible with APZ I. The location of this alternative is within the floodplain of Crutch Creek and a Finding of No Practicable Alternative (FONPA) would be required.

Alternatives

No-Action Alternative

By definition, under the no-action alternative, a new Collocated Club would not be constructed. Not constructing this facility could result in negative impacts, as continued operation of the Officers' Club and Enlisted Club would maintain incompatible land uses in the Clear Zone and APZ I, respectively. Further, Tinker AFB has a waiver that permits operation of both clubs, but the waiver may be rescinded at any time. Should the waiver be rescinded, operation of the clubs would cease or continued operation of the clubs would be in violation of Air Force Handbook, AFH 32-1123(1).

Gott Gate Alternative

The Gott Gate alternative is located in the South Forty Development Area of Tinker AFB on the northeast corner of Air Depot Blvd and Patrol Road near the Gott Gate. This location is currently undeveloped. Potentially suitable habitat for the Texas horned lizard occurs in this area; implementation of this alternative may have adverse impacts for this protected species. The location of the Gott Gate alternative is not within walking

distance of other community use functions in the Community Development Area, thereby reducing its convenience for personnel stationed on-base who do not have access to automobiles. This location is also some distance from other community facilities and housing that generate additional customers and income for the clubs, such as the golf course.

Youth Center Alternative

The site for the Youth Center alternative is a residential area that includes the Youth Center (building 5520) and Tinker Elementary School. Access to this site would be via McNarney Avenue, resulting in additional traffic in this residential area from automobiles and delivery trucks. This additional traffic and the late night operating hours of the Collocated Club would be incompatible with the surrounding residential uses. Additionally, the operation of a commercial entertainment establishment is considered incompatible with the nearby Youth Center (building 5520) and Tinker Elementary School. The location of this alternative is within the floodplain of Crutcho Creek and a FONPA would be required.

Finding of No Practicable Alternative (FONPA) for the Environmental Assessment for the Construction of a Collocated Club at Tinker Air Force Base, Oklahoma

Introduction

Tinker AFB has completed an Environmental Assessment (EA) to determine environmental and socio-economic impacts of construction of a new Collocated Club for use by active duty, retired military, and eligible Department of Defense (DoD) civilian personnel. The preferred location for the Collocated Club is adjacent to the site of the existing Officers' Club. A siting analysis completed by the base Master Planner identified two alternative sites: one near Gott Gate (alternative A) and another near the existing Youth Center (alternative B). The no-action alternative is continued operation of the existing separate facilities. Descriptions of these alternatives are provided in the EA. This document assesses the alternatives to determine whether there exists a practicable alternative to construction of the new Collocated Club that would have less or no impacts to the floodplain of Crutcho Creek.

Consideration of Alternatives

Proposed Action

The proposed action has no identified negative environmental or socio-economic consequences other than encroachment on the floodplain of Crutcho Creek. The proposed location is within the developed area of Tinker AFB. Within this part of the base, Crutcho Creek has been channelized to enhance flood conveyance, resulting in a floodway that is narrower than the floodplain. Crutcho Creek is no longer hydrologically connected with its historic floodplain through this area. Several structures have been built within the historic floodplain. These structures and the proposed Collocated Club location are outside the designated floodway for Crutcho

Creek. As a result, should the proposed action be implemented, there would be no change in flood elevations upstream of the Collocated Club and no reduction in flood conveyance downstream of the club.

Because the general area is already highly developed, there is no functional floodplain and the typical ecological functions of a natural floodplain do not occur.

Implementation of the proposed project would result in placing a structure over less than 0.1 percent of the total floodplain of Crutch Creek. There would be no significant increase in impervious surface area and surface runoff. Impacts to the floodplain would be minor and insignificant.

Alternative A

Alternative A is not located within a floodplain. However, implementation of this alternative could pose a threat to the Texas horned lizard, a protected species.

Alternative A also would result in a change in traffic patterns and increased non-commercial traffic. Commercial traffic would be routed through the base, resulting in increased traffic flow and safety issues. Non-commercial traffic through the base would also increase, as the facility would be located away from residential and operational use areas. The increased human safety risk, threat to a protected species, and increased traffic congestion associated with alternative A are considered more significant than the minor encroachment into the Crutch Creek floodplain associated with the proposed action. Therefore, alternative A is not considered a practicable alternative.

Alternative B

Alternative B would have greater floodplain impacts than the proposed action. The entire facility would be constructed in the floodplain as opposed to half the structure under the proposed action. As alternative B has greater floodplain impacts than the proposed action, it is not a practicable alternative to reduce floodplain impacts.

No-Action Alternative

The no-action alternative would maintain incompatible land uses within the Clear Zone and Accident Potential Zone I of the Tinker AFB airfield. This condition poses a long-term safety risk and could result in the base being in violation of Air Force Handbook, AFH 32-1123(1). Because of the continued incompatible land use and safety risk, the no-action alternative is not a practicable alternative.

Finding of No Practicable Alternative

Based on the above information, including the analysis contained in the EA and taking into account the economic, environmental, and other pertinent factors analyzed in the EA. There are no practicable alternatives to construction in a floodplain for the proposed action. Further, all practicable measures have been taken to minimize impacts to floodplains from activities associated with the proposed action.

Environmental Consequences


The primary environmental consequence of the preferred alternative is the encroachment into the floodplain. Under the preferred alternative, approximately one-half of the building will be located in the floodplain but outside the designated floodway, according to the USACE floodplain maps (revised 2002). As there is no constriction of the floodway, construction of the Collocated Club will not decrease flood transport nor increase in flood elevation upstream of the proposed project.

Encroachment by the proposed addition would be less than 0.1% of the floodplain of Crutch Creek with no encroachment in the floodway. In conjunction with other planned development near the Collocated Club and in the Crutch Creek floodplain (addition to the chapel and addition to the religious education building), total encroachment would remain less than 0.1% of the floodplain, which would not significantly impact the floodplain. As discussed under the FONPA, floodplain encroachment will not be significant. With the exception of floodplain impacts, no unavoidable adverse environmental effects from the implementation of either the preferred alternative, action alternatives, or the no-action alternative have been identified through this EA.

No long-term significant adverse effects and no unavoidable adverse environmental effects from the implementation of the proposed action have been identified through this EA. As a result, no long-term mitigation measures are required. Temporary soil disturbance and runoff potential during construction will be mitigated through the use of best management practices (BMPs).

Conclusion

The attached EA was prepared pursuant to Air Force Instruction (AFI) 32-7061 and Council on Environmental Quality (CEQ) regulations (Title 40, U.S. Code, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act (NEPA). The finding of this EA is that the proposed action will have no significant impact on the human or natural environment. Therefore, a Finding of No Significant Impact (FONSI) statement is issued for the proposed action and no Environmental Impact Statement (EIS) is required.


CHARLES H. COOLIDGE, JR.
Lieutenant General, USAF
Vice Commander, AFMC

Finding of No Practicable Alternatives (FONPA) for the Environmental Assessment for the Construction of a Collocated Club at Tinker Air Force Base, Oklahoma

Introduction

Tinker Air Force Base (AFB) has completed an Environmental Assessment (EA) to determine environmental and socio-economic impacts of construction of a new Collocated Club for use by active duty, retired military, and eligible Department of Defense (DoD) civilian personnel. The preferred location for the Collocated Club is adjacent to the site of the existing Officers' Club. A siting analysis completed by the base master planner identified two alternative sites: one near Gott Gate (alternative A) and another near the existing Youth Center (alternative B). The no-action alternative is continued operation of the existing separate facilities. Descriptions of these alternatives are provided in the EA. This document assesses the alternatives to determine whether there exists a practicable alternative to construction of the new Collocated Club that would have less or no impacts to the floodplain of Crutcho Creek.

Consideration of Alternatives

Proposed Action

The proposed action has no identified negative environmental or socio-economic consequences other than encroachment on the floodplain of Crutcho Creek. The proposed location is within the developed area of Tinker AFB. Within this part of the base, Crutcho Creek has been channelized to enhance flood conveyance, resulting in a floodway that is narrower than the floodplain. Crutcho Creek is no longer hydrologically connected with its historic floodplain through this area. Several structures have been build within the historic floodplain. These structures and the proposed Collocated Club location are outside the designated floodway for Crutcho Creek. As a result, should the proposed action be implemented, there would be no change in flood elevations upstream of the Collocated Club and no reduction in flood conveyance downstream of the club.

Because the general area is already highly developed, there is no functional floodplain and the typical ecological functions of a natural floodplain do not occur. Implementation of the proposed project would result in placing a structure over less than 0.1 percent of the total floodplain of Crutcho Creek. There would be no significant increase in impervious surface area and surface runoff. Impacts to the floodplain would be minor and insignificant.

Alternative A

Alternative A is not located within a floodplain. However, implementation of this alternative could pose a threat to the Texas horned lizard, a protected species.

Alternative A also would result in a change in traffic patterns and increased non-commercial traffic. Commercial traffic would be routed through the base, resulting in increased traffic flow and safety issues. Non-commercial traffic through the base would also increase, as the facility would be located away from residential and operational use areas. The increased human safety risk, threat to a protected species, and increased traffic congestion associated with alternative A are considered more significant than the minor encroachment into the Crutch Creek floodplain associated with the proposed action. Therefore, alternative A is not considered a practicable alternative.

Alternative B

Alternative B would have greater floodplain impacts than the proposed action. The entire facility would be constructed in the floodplain as opposed to half the structure under the proposed action. As alternative B has greater floodplain impacts than the proposed action, it is not a practicable alternative to reduce floodplain impacts.

No-Action Alternative

The no-action alternative would maintain incompatible land uses within the Clear Zone and Accident Potential Zone I of the Tinker AFB airfield. This condition poses a long-term safety risk and could result in the base being in violation of Air Force Handbook, AFH 32-1123(1). Because of the continued incompatible land use and safety risk, the no-action alternative is not a practicable alternative.

Finding of No Practicable Alternative

Based on the above information, including the analysis contained in the EA and taking into account the economic, environmental, and other pertinent factors analyzed in the EA, I find there are no practicable alternatives to construction in a floodplain for the proposed action. I further find that all practicable measures have been taken to minimize impacts to floodplains from activities associated with the proposed action.



CHARLES H. COOLIDGE, JR.

Lieutenant General, USAF

Vice Commander, AFMC

Executive Summary

Introduction

This environmental assessment (EA) evaluates the potential socio-economic and environmental impacts associated with proposed construction of a new Collocated Club within the Community Development Area at Tinker Air Force Base (AFB), Oklahoma. Prior to construction of the new Collocated Club, the existing Officers' Club (building 5603) must be demolished. The environmental impacts of the demolition of this structure are addressed in the *Programmatic EA for Demolition Activities at Tinker AFB* (Tinker AFB, 2000a). The Officers' Club (building 5603) is located in the Clear Zone and is an incompatible use for this area (Department of Defense Instruction [DoDI] 4167.57). The Enlisted Club would be moved to the Collocated Club from building 6001. Building 6001 is partially located in the Accident Potential Zone I (APZ I), and use of this structure as a club is an incompatible use within APZ I. Currently these clubs operate under a revocable waiver. Should the waiver be rescinded, continued operation of the clubs would be in violation of Air Force Handbook (AFH) Section 32-1123 (1). Building 6001 would not be demolished, and its future use would be compatible with AFH 32-1123 (1) and APZ I.

Alternatives Considered

Proposed Action

The proposed action evaluated in this EA is the demolition of the existing Officers' Club and construction of a new Collocated Club outside of the Clear Zone. The site for the proposed action is the grassy area located between the existing Officers' Club (building 5603) and Mitchell Avenue in the Community Development Area of Tinker AFB.

Action Alternatives

The following construction-related alternatives are considered reasonable and are examined further in this EA:

Alternative A (Gott Gate)

The alternative A site is located in the South Forty Development Area of Tinker AFB on the northeastern corner of Air Depot Boulevard and Patrol Road near the Gott Gate. This location is currently undeveloped.

Alternative B (Youth Center)

The alternative B site is located in the Community Development Area of Tinker AFB. This site is located in an open area east of McNarney Avenue and north of the Youth Center (building 5520) in an area that is surrounded by military family (residential) housing.

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MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NATO	North Atlantic Treaty Organization
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRMP	Natural Resources Management Plan
OC-ALC	Oklahoma City Air Logistics Center
OCAMA	Oklahoma City Air Materiel Area
ODEQ	Oklahoma Department of Environmental Quality
ODOC	Oklahoma Department of Commerce
ODWC	Oklahoma Department of Wildlife Conservation
OG&E	Oklahoma Gas and Electric
ONHI	Oklahoma Natural Heritage Inventory
OU	Operable Units
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RVB	Renthin-Vernon-Bethany
SAF/MIQ	Deputy Assistant Secretary of the Air Force for Environment, Safety, and Occupational Health
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SW3P	Stormwater Pollution Prevention Plan
SSSC	State Species of Special Concern
TSCA	Toxic Substance Control Act
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
WQA	Water Quality Act

1. Purpose and Need for the Proposed Action

1.1 Location of the Proposed Action

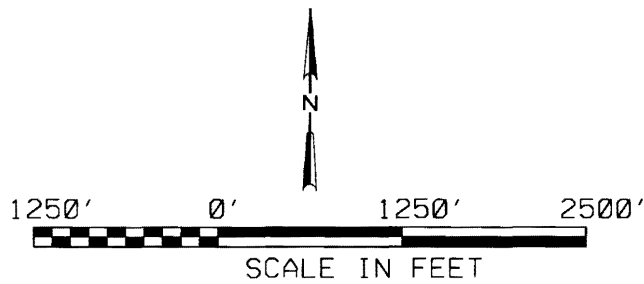
The proposed project is located within the Community Development Area at Tinker AFB, Oklahoma. Figure 1-1 presents a regional location map for Tinker AFB. Figure 1-2 shows the locations of the proposed project and other action alternatives.

1.2 Purpose and Need for the Proposed Action

The proposed action includes the construction of a Collocated Club for use by active duty, retired military, and eligible Department of Defense (DoD) civilian personnel. The club would serve both officers and enlisted personnel, giving them separate functional areas but a shared kitchen, party rooms, and ballroom. Both existing clubs are over 30 years old and need to be replaced. The Officers' Club (building 5603) is located in the Clear Zone and the Enlisted Club (building 6001) is located in the Accident Potential Zone I (APZ I). Tinker AFB has a waiver that permits operation of these clubs in these zones. However, that waiver could be rescinded at any time, and if rescinded, operation of the clubs would be in violation of the Air Force Handbook (AFH), Section 32-1123 (1). Further, according to DoD 4165.57 Air Installation Compatible Use Zones (AICUZ), eating and drinking establishments are not considered compatible uses within the Clear Zone, APZ I, or APZ II (see figure 1-3). The Clear Zone is the area immediately beyond the end of the runway; this area has a high potential for accidents and has traditionally been acquired by the U.S. Government in fee and kept clear of obstructions to flight. The APZ I, the area beyond the Clear Zone, has a significant potential for accidents. The APZ II is the area beyond APZ I and has a measurable potential for accidents.

1.3 Scope of the Environmental Analysis

The National Environmental Policy Act (NEPA) requires federal agencies to consider environmental consequences in their decision-making process. The Council on Environmental Quality (CEQ) issued regulations to implement NEPA that include provisions for both the content and the procedural aspects of the required environmental analysis. The Environmental Impact Analysis Process (EIAP), outlined by Air Force Instruction (AFI) 32-7061, is the mechanism used by the Air Force to ensure that its decisions are made with a complete understanding of the potential environmental consequences. The CEQ regulations are used with AFI 32-7061 to determine the appropriate level of environmental documentation required for a specific proposed action.



COLLOCATED CLUB
PROPOSED ACTION

YOUTH
CENTER
ALTERNATIVE (B)

GOTT
GATE
ALTERNATIVE (A)

LEGEND

ARTERIAL ROADS
COLLECTOR ROADS
GATES

—————

CH2MHILL

G//PROJECTS/160801 TINKER AFB/CLUB-EA
30-SEPTEMBER-2002

FIGURE 1-2
Location of Proposed Action
and Alternatives
Collocated Club EA
Tinker AFB, Oklahoma

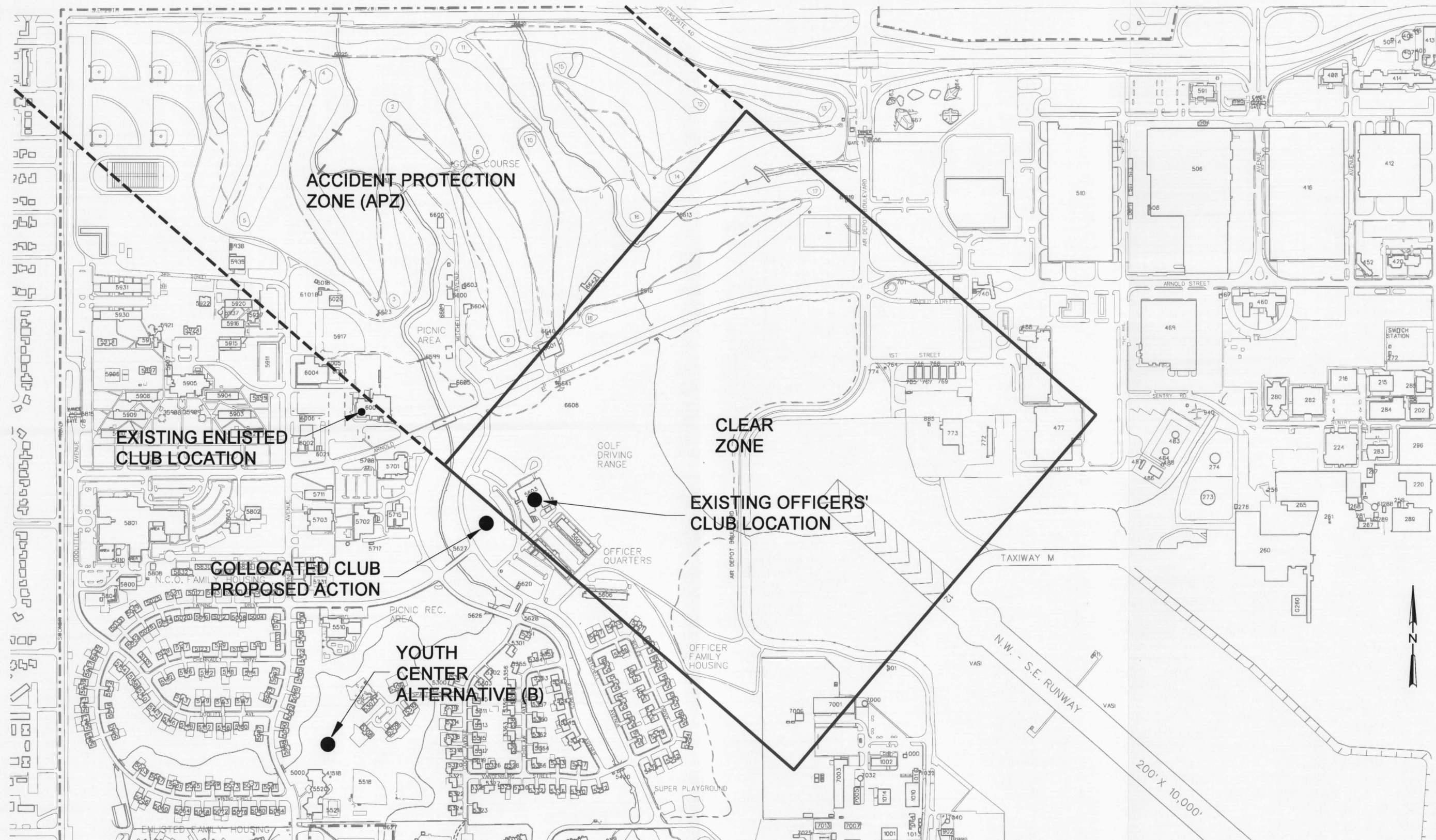


FIGURE 1-3
Location of Proposed Action and Alternatives (Detail)
Collocated Club EA
Tinker AFB, Oklahoma

The potential impacts of facility construction and operation within the Community Development Area at Tinker AFB are evaluated in this environmental assessment (EA). Consistent with AFI 32-7061 and the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the proposed action, other action alternatives, or the no-action alternative. Issues that have a potential for impacts or require regulatory consultation review were considered in more detail to provide the decision-makers with sufficient information to determine whether additional analysis is required pursuant to Title 40 of the Code of Federal Regulations (CFR), Part 1508.9 (40 CFR 1508.9).

The long-term issues of primary concern in this EA are potential impacts on mission objectives, natural resources, land use, socio-economics, infrastructure, and cultural resources, as well as cumulative impacts. Thus, the issues analyzed in more detail in this EA include mission, topography and soils, air quality, noise, surface water and groundwater, biological resources, socio-economics, land use, utilities and solid waste, hazardous and toxic materials and waste, IRP, transportation, cultural resources, and airfield operations. Initial analyses indicate that construction of the proposed action would result in neither short-term nor long-term impacts to geology, groundwater, wetlands, aesthetics, population (including medical services, housing, recreational facilities, and police and fire protection), and environmental justice and protection of children. As there would be no impacts to these areas from the proposed project, there would be no cumulative impacts to these resources resulting from interactions of this project with impacts of other projects in the area. The reasons for not addressing these resources are briefly discussed in the following paragraphs.

Geology. Tinker AFB is underlain by the Garber-Wellington Formation, which is overlain by the Hennessey Group across the southern half of the base. The geologic formations in the area comprise primarily sandstone and shale. Neither the proposed action nor the other action alternatives would impact geology because construction operations would have no effect on subsurface geological formations. For these reasons, geology is not examined further in this document.

Groundwater. The area encompassed by Tinker AFB consists of ephemeral and perennial aquifers. The base is situated over the Garber-Wellington aquifer, a perennial aquifer that is the primary potable water supply source for the base and several surrounding communities. Only limited subsurface work, involving placement of utility lines and building supports, would be planned for either the proposed action or other action alternatives. Utility lines would be placed within 8 feet of the ground surface and building supports could extend deeper than utility lines. For the areas considered as potential sites for the Collocated Club, groundwater is approximately 20 feet below ground surface. Final building design would be accomplished to avoid intrusion to groundwater by building support structures. No subsurface wells are part of either the proposed action or the other action alternatives. As such, no impacts to groundwater resources are anticipated as a result of either the proposed action or the other action alternatives. For these reasons, groundwater is not examined further in this document.

Wetlands. Five jurisdictional wetlands are located on Tinker AFB; however, none are located near the proposed action or other action alternative sites. Because the proposed action and the other action alternatives are located on highly maintained grassy areas that

are some distance from known wetland areas, no impacts to wetlands are anticipated as a result of implementation. For these reasons, wetlands are not examined further in this document.

Aesthetics. The new facility would be designed in accordance with the goals of Tinker AFB's Architectural Compatibility Plan. No impact to visual resources would occur because the proposed action and the other action alternatives do not represent a significant change to the existing visual environment. For these reasons, aesthetic impacts are not examined further in this document.

Population. The Oklahoma City Standard Metropolitan Service District contains a population of slightly more than 1.05 million. Tinker AFB employs slightly more than 24,000 military and civilian personnel. Employees, in turn, support additional on-base and off-base dependents, with approximately 3,700 employees and dependants living on-base. Neither the proposed action nor the other action alternatives involve transfers or addition of personnel to the Tinker AFB community. As such, they would not result in an increase in population. Because no increase in population is anticipated as a result of either the proposed action or the other action alternatives, no additional demands for medical services, housing supply, educational facilities, recreational facilities, or police protection would result. The additional square footage added to the overall base with the construction of the new Collocated Club would be less than the existing clubs combined; therefore, this new facility would not place an undue burden on the ability of the Tinker AFB Fire Department to respond to emergencies. Additionally, the new Collocated Club would have sprinklers for fire protection per applicable AFIs and local codes. Because there are no anticipated adverse impacts to these population or social services, they are not examined further in this document.

Environmental Justice and Protection of Children. No changes in population levels or local employment levels would result from either the proposed action or other action alternatives. In addition, no other on-base or off-base impacts have been identified which could lead to an adverse impact upon any low-income populations, minority populations, or children in the area. Because no anticipated impacts to any groups protected through Executive Order (EO) 12898 or EO 13045 are expected to result from the proposed action or the other action alternatives, all considered alternatives are determined to be in compliance with these EOs. Therefore, these areas are not examined further in this EA.

1.4 Applicable Regulatory Requirements and Coordination

This section summarizes the most applicable environmental and socio-economic regulations, consultation requirements, and public involvement issues pertaining to the proposed action.

1.4.1 Applicable Federal and State Laws

Environmental Policy

The NEPA of 1969 and Title 40 of the CFR, Parts 1500-1508 (40 CFR 1500-1508), require federal agencies to consider the potential environmental consequences of proposed

actions and alternatives. DoD Directive 6050.1 (32 CFR 214) provides DoD policies and procedures to supplement 40 CFR 1500-1508. AFI 32-7061 describes specific tasks and procedures for complying with the NEPA through the EIAP, including responsibilities, compliance requirements, and document preparation and processing. EO 11514, Protection and Enhancement of Environmental Quality (amended by EO 11991), provides policy directing the federal government to take leadership in protecting and enhancing the environment.

Biological Resources (Vegetation and Habitat, Wildlife, and Threatened and Endangered Species)

The Endangered Species Act of 1973 (16 U.S. Code [USC] 1531-1543), as amended, provides policy for federal agencies (with the assistance of the Secretaries of the Interior and Commerce) to ensure that their actions do not jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitat of such species.

The Fish and Wildlife Coordination Act, (16 USC 661, et seq.), as amended, provides policy for the Secretary of the Interior (through the U.S. Fish and Wildlife Service [USFWS]) and for the National Marine Fisheries Service (NMFS) (through the Secretary of Commerce) to assist and cooperate with federal, state, and public or private agencies and organizations in the conservation and rehabilitation of wildlife.

The Migratory Bird Treaty Act (16 USC 701, et seq.) provides for the protection of migratory birds. It forbids, among other things, the taking, import, possession, purchase, or selling of migratory birds, with the exception of government-sanctioned hunting and capture of birds. Although recent court rulings have resulted in the USFWS ceasing to issue permits to other federal agencies for incidental takings of migratory birds, the USFWS is developing an EO that will clarify the responsibilities of federal agencies with regard to the taking of migratory birds. The Air Force has issued interim guidance for complying with the Migratory Bird Treaty Act (memorandum dated 12 September 1997), effective until the EO is issued. The guidance requires the evaluation of non-lethal control measures, consultation with the USFWS regarding potential protected species issues, compliance with treaties, consultation with appropriate state agencies, proper oversight of contractors and volunteers, and compliance with NEPA.

Wetlands

The Clean Water Act (CWA) of 1977 and the Water Quality Act (WQA) of 1987 (33 USC 1251 et seq., as amended) provide policy for protecting wetlands and other waters of the United States. Section 404 of the CWA requires permits from the U.S. Army Corps of Engineers (USACE) to discharge dredged or fill material into such systems. EO 11990, Protection of Wetlands, requires federal agencies to minimize or avoid adverse impacts to wetlands and to preserve and enhance their beneficial values. AFI 32-7061 requires that EAs prepared for actions for which the Air Force has wetlands compliance responsibilities go through Headquarters Civil Engineering, Compliance to Secretary of the Air Force/Environmental Security (HQ CEV to SAF/MIQ) for approval.

Land Use

EO 12372, Intergovernmental Review of Federal Programs, directs federal agencies to consult with and solicit concerns and comments from state and local governments that have jurisdiction over an area within which a federal action is proposed. The Farmland Protection Act of 1981 (7 USC 4201 et. seq., as amended) requires federal agencies to consult with the Natural Resources Conservation Service (NRCS) to ensure that preservation/conservation of important farmlands is considered in federal actions.

Hazardous Substances

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (as amended by the Superfund Amendments and Reauthorization Act [SARA] of 1986) provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substance disposal sites.

The Resource Conservation and Recovery Act (RCRA) of 1976 provides policy for proper disposal of solid waste and establishes standards and procedures for the handling, storage, treatment, and disposal of hazardous wastes.

The Toxic Substance Control Act (TSCA) provides policy for proper handling of polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint. State and local regulations should be consulted when engaging in activities that involve these substances on civil works projects or properties.

Cultural Resources

The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq., as amended) provides policy for the protection of historic resources from federal actions. Protection of Historic Properties (36 CFR 800) provides specific procedures that federal agencies must implement, such as consulting with the State Historic Preservation Office (SHPO), to ensure compliance with the NHPA.

The Archeological Resources Protection Act of 1979 requires federal agencies to conduct archaeological investigations on lands under their jurisdiction to determine the nature and extent of the protected cultural resources present and to help manage extant resources in accordance with permit and enforcement provisions of the Act.

Water Resources

The CWA of 1977 and the WQA of 1987 provide federal policy on maintaining and restoring water quality to protect and enhance waters of the United States. Section 404 of the CWA requires permits from USACE to discharge dredged or fill material into waters of the United States.

EO 11988, Floodplain Management, provides federal policy for reducing flood damage risk, minimizing the impacts of floods potentially resulting from a federal action, and preserving the natural and beneficial values provided by floodplains/floodways.

AFI 32-7061, Environmental Impact Analysis Process, requires HQ CEV to SAF/MIQ approval of EAs prepared for actions for which the Air Force has floodplain compliance

responsibilities. A Finding of No Practicable Alternative (FONPA) must be submitted to HQ USAF/CEV when the alternative selected is located in wetlands or floodplains. The FONPA must discuss why no other practicable alternative exists to avoid impacts.

AFI 32-7064, Integrated Natural Resources Management, requires SAF/MIQ or other designated official to approve the FONPA before any action within a floodplain may proceed as specified in Secretary of the Air Force Order 790.1. In preparing the FONPA, the Air Force must consider the full range of practicable alternatives which meet justified program requirements, are within the legal authority of the Air Force, meet technology standards, are cost-effective, do not result in unreasonable adverse environmental impacts, and other pertinent factors. Once the practicality of alternatives has been fully assessed, only then should a statement regarding the FONPA be made into the associated Finding of No Significant Impact (FONSI) or Record of Decision (ROD). The Chairperson of the Major Command (MAJCOM) Environmental Protection Committee is the approval authority for FONSI's containing a FONPA for floodplains.

DoD 4165.57, AICUZ, identifies policy on achieving compatible use of public and private lands in the vicinity of military airfields. DoD 4165.57 defines required restrictions on the uses and heights of natural and man-made objects in the vicinity of air installations to provide for flight safety and to assure that people and facilities are not concentrated in areas susceptible to aircraft accidents. It also defines desirable restrictions on land use to assure compatibility with the characteristics, including noise, of air installation operations and describes the procedures by which the AICUZ land uses may be defined. DoD 4165.57 provides policy on the extent of Government interest in real property within AICUZ that may be retained or acquired to protect the operational capability of active military airfields.

Air Quality

The Clean Air Act (CAA) (42 USC 7401 et seq., as amended) provides policy directing federal agencies to protect and enhance air quality. The CAA also requires agencies to verify that proposed actions conform to state implementation plans for attaining air quality goals.

Noise

The Noise Control Act of 1972 provides policy that directs federal agencies to limit noise emissions to within compliance levels.

Social

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, provides policy directing federal agencies to evaluate the effects of proposed actions on minority communities and low-income communities. Effects are to be evaluated to determine whether there are adverse impacts to human health, social conditions, environmental quality, and economic conditions.

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, provides policy directing federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children.

1.4.2 Environmental Compliance

Table 1-1 summarizes the status of compliance of the project with applicable federal environmental statutes and EOs.

1.4.3 Consultation Requirements

Letters were sent to the USFWS, Oklahoma Department of Wildlife Conservation (ODWC), and Oklahoma Natural Heritage Inventory (ONHI) regarding the potential effects the proposed action may have on protected species or their habitat. Copies of these letters and the agency responses are provided in Appendix A.

Letters were sent to the SHPO and the Oklahoma Archaeological Survey regarding the potential effects the proposed action may have on cultural resources pursuant to the requirements of the NHPA. Copies of these letters and the agency responses are provided in Appendix A.

TABLE 1-1
Federal Environmental Statutes and Executive Orders

Acts	Compliance Status
Archaeological and Historic Preservation Act of 1974 (16 USC 469)	In compliance
Clean Air Act, as amended (Public Law 88-206)	In compliance
Clean Water Act, as amended (Public Law 95-217)	In compliance
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Public Law 96-510), as amended by the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499)	In compliance
Endangered Species Act of 1973, as amended (Public Law 93-205)	In compliance
Farmland Protection Policy Act of 1984 (7 USC 1539-1579)	In compliance
Fish and Wildlife Coordination Act, as amended (16 USC 661, et seq.)	In compliance
Migratory Bird Treaty Act (16 USC 701, et seq.)	In compliance
National Environmental Policy Act of 1969 (Public Law 91-190)	Ongoing ^a
National Historic Preservation Act of 1966, as amended (Public Law 89-665)	In compliance
Noise Control Act of 1972, as amended	In compliance
Occupational Safety and Health Act of 1970, as amended (Public Law 91-956)	In compliance
Resource Conservation and Recovery Act (Public Law 94-580)	In compliance
Safe Drinking Water Act, as amended (Public Law 93-523)	In compliance
Solid Waste Disposal Act of 1965, as amended	In compliance
Toxic Substances Control Act of 1976 (Public Law 94-469)	In compliance
Watershed Protection and Flood Prevention Act of 1954 (16 USC 1101, et seq.)	In compliance
Wetlands Conservation Act (Public Law 101-233)	In compliance
Executive Orders	
Flood Plain Management (Executive Order 11988)	In compliance
Protection of Wetlands (Executive Order 11990)	In compliance
Federal Compliance with Pollution Standards (Executive Order 12088)	In compliance
Environmental Justice in Minority Populations and Low-Income Populations (Executive Order 12898)	In compliance

^a Ongoing—Some requirements of the regulation remain to be met before certain actions related to the proposed action can be implemented. Full compliance is expected.

1.5 Introduction of the Logic, Scope, and Organization of the EA

This EA discusses the applicable regulatory requirements and existing conditions that serve as the context to evaluate the potential environmental and socio-economic impacts associated with the proposed action and alternatives. Based on the nature of the proposed action and the affected environment, this EA evaluates the type and extent of potential environmental and socio-economic impacts associated with the proposed action.

Section 1 of this EA defines the purpose and need for the proposed action.

Section 2 describes the proposed action, the other action alternatives, and no-action alternative.

Section 3 provides general information on existing conditions and describes the environmental, economic, and social resources that may be affected by the project alternatives.

Section 4 discusses the environmental and socio-economic consequences (impacts) associated with the proposed action.

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2. Description of the Proposed Action and Alternatives

2.1 Introduction

This section of the EA describes the proposed action, the other action alternatives, and the no-action alternative. Tinker AFB has identified a need to construct a new Collocated Club adjacent to the current Officers' Club. Construction would occur within the Community Development Area at Tinker AFB, Oklahoma. Prior to construction of the new Collocated Club, the existing Officers' Club (building 5603) must be demolished. The environmental impacts of the demolition of this structure are addressed in the *Programmatic EA for Demolition Activities at Tinker AFB* (Tinker AFB, 2000a).

2.2 History of the Formulation of Alternatives

NEPA and AFI 32-7061 require consideration of reasonable alternatives to the proposed action. Only alternatives that would reasonably meet the defined need for the proposed action require detailed analysis in this EA.

The proposed action includes the construction of a new Collocated Club for use by active duty, retired military and eligible DoD civilian personnel. The club would serve both officers and enlisted personnel, giving them separate functional areas but a shared kitchen, party rooms, and a ballroom. Both existing clubs are over 30 years old and need to be replaced. The Officers' Club (building 5603) is located in the Clear Zone and a portion of the Enlisted Club (building 6001) is located in the APZ (see figure 1-3). While these clubs are not considered compatible uses within these zones (DoDI 4167.57), Tinker AFB has a revocable waiver that permits operation of both clubs. Should the waiver be rescinded, continued operation of the clubs would be in violation of AFH 32 1123(1).

A siting analysis completed by the base master planner identified two alternative sites: one site near Gott Gate (alternative A) and another near the existing Youth Center (alternative B). These alternatives are discussed below as other action alternatives.

2.3 Proposed Action

The proposed action includes the demolition of the existing Officers' Club (building 5603) and construction of a Collocated Club in the open area between the existing Officers' Club and Mitchell Avenue. The new Collocated Club would be located within the Community Development Area of Tinker AFB, Oklahoma. This facility would be used by active duty, retired military and eligible DoD civilian personnel and include a common kitchen and eating area, as well as separate casual areas for the enlisted and

officer personnel. It would occupy approximately 40,000 square feet and include approximately 150 parking spaces.

While not directly part of the proposed action, the planned future use of building 6001 would be compatible with AFH 32-1123(1). This building lies partially within APZ I (figure 1-3) and its use as an Enlisted Club is an incompatible use for APZ I. The portion of the building that lies within the APZ I is planned for storage and maintenance after the Enlisted Club is moved. This use is compatible with APZ I. The remainder of the building, which lies outside APZ I, is planned to serve as the new golf club.

2.4 Action Alternatives

The following construction-related alternatives are considered reasonable and are examined further in this EA:

2.4.1 Alternative A (Gott Gate)

The alternative A site is located in the South Forty Development Area of Tinker AFB on the northeastern corner of Air Depot Blvd and Patrol Road near the Gott Gate. This location is currently undeveloped. Implementation of this alternative would result in construction of the same building and parking infrastructure as the proposed action. Implementation of alternative A would result in demolition of building 5603 and designation of a new use for building 6001, the same as for the proposed action.

However, this location is not within walking distance of other community use functions in the Community Development Area, thereby reducing its convenience for personnel stationed on-base who do not have access to automobiles. This location is also some distance from other community facilities and housing, which generate additional customers and income for the clubs, such as the golf course. The Gott Gate site is within known habitat for the Texas horned lizard (*Phrynosoma cornutum*), and would result in loss of habitat for this protected species.

2.4.2 Alternative B (Youth Center)

The alternative B site is located in the Community Development Area of Tinker AFB. This site is located east of McNarney Avenue and north of the Youth Center (building 5520) in an area that is surrounded by military family (residential) housing. Implementation of this alternative would result in construction of the same building and parking infrastructure as the proposed action. Implementation of alternative B would result in demolition of building 5603 and designation of a new use for building 6001, the same as for the proposed action.

Access to this site, including deliveries to the club, would be via McNarney Avenue, resulting in additional traffic from automobiles and introducing truck traffic to this residential area of the base. This additional traffic and the late-night operating hours of the Collocated Club would be incompatible with the surrounding residential uses. Additionally, the operation of a commercial entertainment establishment is considered incompatible with the nearby Youth Center (building 5520) and Tinker Elementary

School. This alternative also would result in greater encroachment upon the floodplain than the preferred alternative.

2.5 No-Action Alternative

By definition, the no-action alternative is a continuation of existing conditions. Therefore, for this EA, the no-action alternative is continued operations at the existing Officers' Club and Enlisted Club. No new structures or parking would be constructed.

Not constructing this facility would result in continued negative impacts, as the Officers' Club would continue to operate in the Clear Zone and the Enlisted Club would continue to operate in the APZ I, and violations of AFH 32-1123(1) could result. These negative mission impacts do not make the no-action alternative preferable to the proposed action.

2.6 Comparison Matrix of the Environmental Effects of All of the Alternatives

Table 2-1 summarizes the environmental and socio-economic effects of the proposed action, the other action alternatives, and the no-action alternative. Section 4 of this EA provides more detailed information on the effects of each alternative.

2.7 Identification of the Preferred Alternative

The preferred alternative is the proposed action as described above to construct a new Collocated Club at a location that is immediately adjacent to the existing Officers' Club but outside the Clear Zone. Construction would occur within the Community Development Area at Tinker AFB, Oklahoma. The proposed action meets mission objectives for providing required space and collocation of services while avoiding potential land use conflicts.

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Mission	Provides additional mission space, consolidation of activities.	Provides additional mission space, consolidation of activities.	Provides additional mission space, consolidation of activities.	Potential negative impact: Officers' Club is located in the Clear Zone and Enlisted Club is located in APZ I. If operational waiver is rescinded a violation of AFH 32-1123(1) could occur.

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Topography, Soils, and Geology	Minor impacts to soils from construction. No impacts to topography or geology anticipated. Erosion control BMPs to be employed. No long-term impacts anticipated.	Minor impacts to soils from construction. No impacts to topography or geology anticipated. Erosion control BMPs to be employed. No long-term impacts anticipated.	Minor impacts to soils from construction. No impacts to topography or geology anticipated. Erosion control BMPs to be employed. No long-term impacts anticipated.	No impacts, as no change from existing conditions would occur.
Noise	Minor construction-related noise events. No long-term noise sources added. Construction-related activities near residential areas or other sensitive receptors usually restricted to daytime hours. Construction-related noise temporary and of short duration and not considered to be significant.	Minor construction-related noise events. No long-term noise sources added. Construction-related activities near residential areas or other sensitive receptors usually restricted to daytime hours. Construction-related noise temporary and of short duration and not considered to be significant.	Minor construction-related noise events. No long-term noise sources added. Construction-related activities near residential areas or other sensitive receptors usually restricted to daytime hours. Construction-related noise temporary and of short duration and not considered to be significant.	No impacts, as no change from existing conditions would occur.
Air Quality	Minor construction-related fugitive dust emissions would require appropriate control BMPs. Use of natural gas compressors or heating, ventilation and air conditioning (HVAC) units would require coordination with Tinker Air Quality staff.	Minor construction-related fugitive dust emissions would require appropriate control BMPs. Use of natural gas compressors or HVAC units would require coordination with Tinker Air Quality staff.	Minor construction-related fugitive dust emissions would require appropriate control BMPs. Use of natural gas compressors or HVAC units would require coordination with Tinker Air Quality staff.	No impacts, as no change from existing conditions would occur.

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Groundwater and Surface Water	<p>According to recently revised USACE floodplain map, the proposed building location would be outside the floodway.</p> <p>Approximately one-half of the building would be located within the 100-yr floodplain.</p> <p>Six monitoring wells are located near this site. One monitoring well would need to be relocated prior to construction.</p> <p>A plume consisting primarily of chlorinated solvents is located approximately 20 feet below ground underneath the existing Officers' Club (5603). As a result, additional safety measures should be implemented during construction and installation of utilities in this area.</p> <p>Potential minor impacts from construction. Erosion control BMPs to be employed to prevent runoff from entering storm drains.</p> <p>No long-term impacts anticipated.</p>	<p>This site is not located within the floodway or floodplain. No impacts to the floodplain are anticipated.</p> <p>Approximately 20 monitoring wells are located along the periphery of this site. Almost half of these wells are extraction wells which include piping to the treatment plant located to the north of this site.</p> <p>A plume of tri-chloro-ethylene has been identified approximately 40 feet beneath this site. As a result, additional safety measures should be implemented during construction and installation of utilities in this area.</p> <p>Potential minor impacts from construction. Erosion control BMPs to be employed to prevent runoff from entering storm drains.</p> <p>No long-term impacts anticipated.</p>	<p>According to recently revised USACE floodplain map, the proposed building location would be outside the floodway.</p> <p>Portions of the building would be located within the 100-yr floodplain. No monitoring wells are located in this area.</p> <p>No plumes have been identified underneath or in close proximity to this site.</p> <p>Potential minor impacts from construction. Erosion control BMPs to be employed to prevent runoff from entering storm drains.</p> <p>No long-term impacts anticipated.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Hazardous and Toxic Materials and Wastes	<p>No additional hazardous waste generated or proposed for storage.</p>	<p>No additional hazardous waste generated or proposed for storage.</p>	<p>No additional hazardous waste generated or proposed for storage.</p>	<p>No impacts, as no change from existing conditions would occur.</p>

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
IRP	<p>The proposed site is located within IRP Site CG037 and near the Crutch Creek Site (IRP site 0T09).</p> <p>One monitoring well would need to be relocated prior to construction.</p> <p>Additional safety measures should be implemented during construction and installation of utilities in this area.</p>	<p>Site CG038 is located to the north of the alternative A location, but is not expected to impact this location.</p> <p>Approximately 20 monitoring wells are located along the periphery of this site. Almost half of these wells are extraction wells which include piping to the treatment plant located to the north of this site.</p>	<p>No impacts, as there are no IRP sites in the area.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Terrestrial Biota	<p>No impacts, as site is paved or highly maintained and disturbed grassy area located in an urban/industrial vegetation type. No protected species or potentially suitable habitat occur in the project area.</p>	<p>Project area is located in a grassland vegetation type and within the habitat for the Texas horned lizard.</p> <p>Construction at this location should be conducted in compliance with applicable threatened and endangered species regulations.</p>	<p>No impacts, as site is highly maintained and disturbed grassy area located in an urban/industrial vegetation type.</p> <p>No protected species or potentially suitable habitat occur in the project area.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Aquatic Biota	<p>No impacts, as site is paved or highly maintained and disturbed grassy area. Potential minor impacts to Crutch Creek from construction. Erosion control BMPs to be employed to avoid runoff.</p>	<p>No impacts, as site is highly maintained and disturbed grassy area. Potential minor impacts to Redbud and Beaver Ponds from construction. Erosion control BMPs to be employed to avoid runoff.</p>	<p>No impacts, as site is highly maintained and disturbed grassy area.</p> <p>Erosion control BMPs to be employed to avoid runoff.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Wetlands	<p>No impacts, as sites are paved areas or highly maintained and disturbed grassy areas. No nearby wetlands are present.</p>	<p>No impacts, as sites are paved areas or highly maintained and disturbed grassy areas. No nearby wetlands are present.</p>	<p>No impacts, as sites are highly maintained and disturbed grassy areas. No nearby wetlands are present.</p>	<p>No impacts, as no change from existing conditions would occur.</p>

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Threatened and Endangered Species	No protected species or potentially suitable habitat occur in the project area. No designated critical habitat exists in area.	Site within boundaries of habitat for the Texas horned lizard. Construction at this location should be conducted in compliance with applicable threatened and endangered species regulations.	No protected species or potentially suitable habitat occur in the project area. No designated critical habitat exists in area.	No impacts, as no change from existing conditions would occur.
Employment	Beneficial impact from additional short-term construction employment. No long-term impacts, as no additional staff are proposed.	Beneficial impact from additional short-term construction employment. No long-term impacts, as no additional staff are proposed.	Beneficial impact from additional short-term construction employment. No long-term impacts, as no additional staff are proposed.	No impacts, as no change from existing conditions would occur.
Income	Beneficial impact from additional short-term construction spending. No long-term impacts, as no additional expenditures are proposed.	Beneficial impact from additional short-term construction spending. No long-term impacts, as no additional expenditures are proposed.	Beneficial impact from additional short-term construction spending. No long-term impacts, as no additional expenditures are proposed.	No impacts, as no change from existing conditions would occur.
Land Use	No impact, as proposed action conforms with existing land use designations and adjacent land uses.	Negative impact, as location is some distance from similar community facilities and military family and unaccompanied active duty housing.	Negative impact, as this alternative could conflict with military family housing and childcare facilities located nearby.	No impacts, as no change from existing conditions would occur.
Population	No impact, as no additional personnel are proposed.	No impact, as no additional personnel are proposed.	No impact, as no additional personnel are proposed.	No impacts, as no change from existing conditions would occur.
Housing	No impact, as no additional personnel are proposed.	No impact, as no additional personnel are proposed.	No impact, as no additional personnel are proposed.	No impacts, as no change from existing conditions would occur.

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Utilities	<p>No significant adverse impact, as additional demand within existing capacity of the base infrastructure.</p> <p>During construction of utilities additional safety measures should be implemented to prevent impacts to nearby monitoring wells and chlorinated solvent plume.</p> <p>Trenches for utility lines would be more than 10 feet above groundwater.</p>	<p>No significant adverse impact, as additional demand within existing capacity of the base infrastructure.</p> <p>During construction of utilities additional safety measures should be implemented to prevent impacts to nearby monitoring wells and associated connections to Industrial Wastewater Treatment Plant (IWTP)</p> <p>Trenches for utility lines would be more than 10 feet above groundwater.</p>	<p>No significant adverse impact, as additional demand within existing capacity of the base infrastructure.</p> <p>Trenches for utility lines would be more than 10 feet above groundwater.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Transportation	<p>Beneficial impact, as travel distance between similar community facilities and residential areas is short. Construction impacts would result in temporary transportation impacts, as roads are closed and realigned to provide better access and parking. Project would also result in increased local non-commercial traffic. No parking impacts are anticipated</p>	<p>Negative impact, as location would increase the distance between similar community services and military family housing (residential) areas which help generate customers for the clubs. Location is not within walking distance, thereby making this location inaccessible to personnel without cars on-base. Project would also result in increased local non-commercial traffic. No parking impacts are anticipated.</p>	<p>Negative impact, as location would result in increased commercial traffic from delivery trucks, which is incompatible with the residential use of the area. Potential safety risk from increased commercial traffic in residential area. Beneficial impact, as location is within walking distance of military family (residential) housing areas. No parking impacts are anticipated.</p>	<p>No impacts, as no change from existing conditions would occur.</p>
Community Facilities	<p>No impact to services, as no new personnel are proposed.</p>	<p>No impact to services, as no new personnel are proposed.</p>	<p>No impact to services, as no new personnel are proposed.</p>	<p>No impacts, as no change from existing conditions would occur.</p>

TABLE 2-1
Comparative Impact Summary--Collocated Club

Resource Area	Preferred Alternative	Alternative A (Gott Gate)	Alternative B (Youth Center)	No-Action Alternative
Cultural Resources	No cultural resources identified in area. Potential for archaeological sites near creek. Phase I survey to be conducted prior to construction in areas near floodplain.	No cultural resources identified in area. Low probability of impact anticipated, as area has been heavily disturbed.	No cultural resources identified in area. Potential for archaeological sites near creek. Phase I survey to be conducted prior to construction in areas near floodplain.	No impacts, as no change from existing conditions would occur.
Visual Resources	Projects would not conflict with general visual nature of existing facilities in the Community Development Area.	Projects would not conflict with general visual nature of existing facilities in the South Forty Development Area.	Projects would not conflict with general visual nature of existing facilities in the Community Development Area.	No impacts, as no change from existing conditions would occur.
Airspace/Air Operations	Positive impact, as Officers' Club would no longer be operating in the Clear Zone and the existing structure in the Clear Zone would be demolished; the Enlisted Club would no longer be operating within APZ I and the existing structure would no longer be used regularly. No conflict with or impact to existing airspace or air operations.	Positive impact, as Officers' Club would no longer be operating in the Clear Zone and the existing structure in the Clear Zone would be demolished; the Enlisted Club would no longer be operating within APZ I and the existing structure would no longer be used, as a club. No conflict with or impact to existing airspace or air operations.	Positive impact, as Officers' Club would no longer be operating in the Clear Zone and the existing structure in the Clear Zone would be demolished; the Enlisted Club would no longer be operating within APZ I and the existing structure would no longer be used, as a club. No conflict with or impact to existing airspace or air operations.	Potential negative impact: Officers' Club is located in the Clear Zone and Enlisted Club is located in APZ I. If operational waiver is rescinded a violation of AFH 32-1123(1) could occur.

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3. Affected Environment

3.1 Introduction

This section discusses the environmental, social, and economic resources that may be affected by the proposed action. The components of the affected environment discussed in this section are those for which impacts have been identified or which require regulatory consultation review. The following areas are discussed within this section: mission; topography and soils; noise; air quality; surface water; hazardous and toxic material and wastes; IRP; terrestrial biota; threatened and endangered species; economic resources; land use; utilities; solid waste; transportation; cultural resources; and airfield operations. The following information is based upon the *Tinker AFB General Plan* (Tinker AFB, 2000b) and the *Tinker AFB Natural Resources Management Plan* (NRMP) (Tinker AFB, July 2000).

3.2 Location, History, and Current Mission of the Installation

Tinker AFB is located in Oklahoma County in the southeastern city limits of Oklahoma City, Oklahoma. The base covers more than 5,000 acres and abuts Midwest City to the north and Del City to the west.

Tinker AFB began operations in 1941, when Oklahoma City was awarded a maintenance and supply depot from the War Department. Immediately following World War II, Tinker AFB expanded to include the Douglas aircraft assembly plant and was named the Oklahoma City Air Materiel Area (OCAMA). OCAMA was overhauled in the 1950s to accommodate the B-52 bomber and KC-135 tanker. In the 1960s, Tinker AFB began to support additional aircraft, including the J57, TF30, and J79 engines. In 1967, Tinker AFB was designated an inland aerial port of embarkation (APOE) for Southeast Asia. During the 1970s, Tinker AFB assumed management of new weapons, including the A-7D Corsair, E-3A Airborne Warning and Control (AWAC) aircraft, E-4 Airborne Command Post aircraft, and air- and ground-launched missiles. In 1974, Tinker AFB was renamed the Oklahoma City Air Logistics Center (OC-ALC). During the following years, Tinker AFB added support for the B-1 Bomber, the medium-range surface-to-air missile, and the F108-100 engine. The 28th Air Division was activated to handle the expanded E-3 AWAC operations. In 1991, two Navy E-6 squadrons were added to maintain a flying/communications link between the White House and ballistic missile submarines around the world.

Today, the OC-ALC provides worldwide logistics support for a variety of weapons systems, including the B-52, multipurpose 135 series, E-3 and E-4 aircraft, B-2 stealth bomber, B-1 bomber, and the short-range attack missile. The OC-ALC also manages both air- and ground-launched cruise missiles. Tenant organizations at Tinker AFB include units of the Air Combat Command, Air Force Communications Agency, Air Force Reserve, and Air Mobility Command.

3.3 Description of the Project Area

3.3.1 Topography and Soils

Topography

Tinker AFB is located in the Central Redbed Plains section of the Central Lowland Physiographic Province. The Central Lowland Province is characterized by level to gently rolling hills, broad flat plains, and bottomlands intersected by small- to medium-sized watercourses. Oklahoma County elevations range from about 850 feet above mean sea level (MSL) in the southeastern part to 1,300 feet MSL in the northwestern part. Base elevations range from approximately 1,200 feet MSL (Crutcho Creek – northwestern portion of base) to 1,310 feet above MSL (southeastern portion of base).

The Community Development Area and South Forty Development Area are located on relatively flat lands, most of which are heavily maintained.

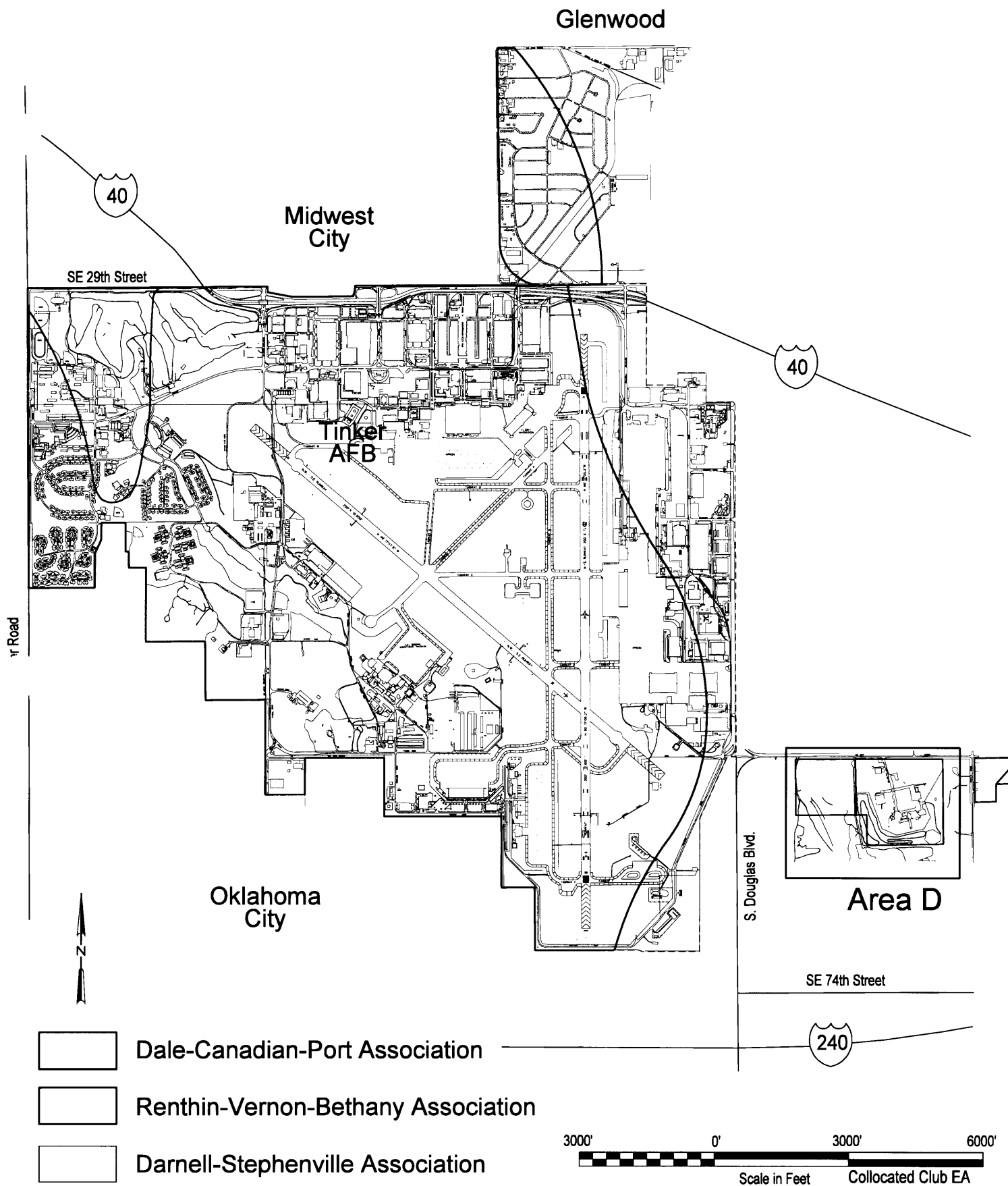
Soils

Tinker AFB lies within three major soil associations: Darnell-Stephenville Association (DS), Dale-Canadian-Port (DCP) Association, and Renthin-Vernon-Bethany (RVB) Association (see figure 3-1). The DS Association consists of shallow to deep sloping, loamy soils in upland areas. The DCP Association consists of deep, loamy alluvial soils typically occurring in or near bottomlands along watercourses. The RVB Association consists of shallow to deep loamy and clayey soils typically occurring in upland areas. Slopes within this association vary from nearly level to moderately steep. According to the soil survey completed in 1983 and updated in 1991 by the NRCS, 89 acres were classified as prime farmland. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, oilseed, and crops. When Tinker AFB was surveyed, much of the land (approximately 300 acres) that would have been designated prime farmland in the past had long since been urbanized and, therefore, no longer met prime farmland criteria.

The alternative sites lie within the RVB Association, with the exception of the Youth Center alternative, which is partially DCP Association.

3.3.2 Noise

Noise levels in the environment are usually expressed in terms of hourly equivalent sound pressure levels (L_{eq}) measured in decibels on the A-weighted scale (dBA). When expressed in this manner, noise levels approximate the response of the human ear by filtering out some of the noise in the low and high frequency ranges that the ear does not easily detect. The A-weighted scale is also used in most local ordinances and standards. L_{eq} is defined as the average noise level, on an energy basis, for a specific period of time (e.g., hourly). Many environmental studies use the Day-Night noise level (L_{dn}), because it accounts for the greater annoyance of noise during nighttime hours. L_{dn} values are



Source: USDA Soil Conservation Service, 1969

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FIGURE 3-1
Soil Associations
Collocated Club EA
Tinker AFB, Oklahoma

typically calculated by averaging hourly L_{eq} sound levels for a 24-hour period and adding a weighting factor to the nighttime L_{eq} values. The weighting factor, which reflects the increased sensitivity to noise during nighttime hours, is added to each hourly L_{eq} sound level before the 24-hour L_{dn} is calculated. Figure 3-2 shows the noise levels on Tinker AFB based on 1998 data. Weighted noise levels above 70 dB are considered unacceptable for residential areas.

3.3.3 Air Quality

Tinker AFB and the surrounding area have a warm, temperate climate. Seasonal storms provide precipitation, with the heaviest amounts occurring in spring and summer. Spring and summer storms are often severe, with tornadoes occurring primarily in April and May.

The Oklahoma Department of Environmental Quality (ODEQ) has adopted air quality standards that are identical to the National Ambient Air Quality Standards (NAAQS). Oklahoma County, which includes Tinker AFB and the surrounding areas, is in compliance with the NAAQS. There are no Federal Class I Prevention of Significant Deterioration areas (having degradation of ambient air quality), including strictly limited visibility, in the Oklahoma City region (40 CFR 81.424).

3.3.4 Surface Water

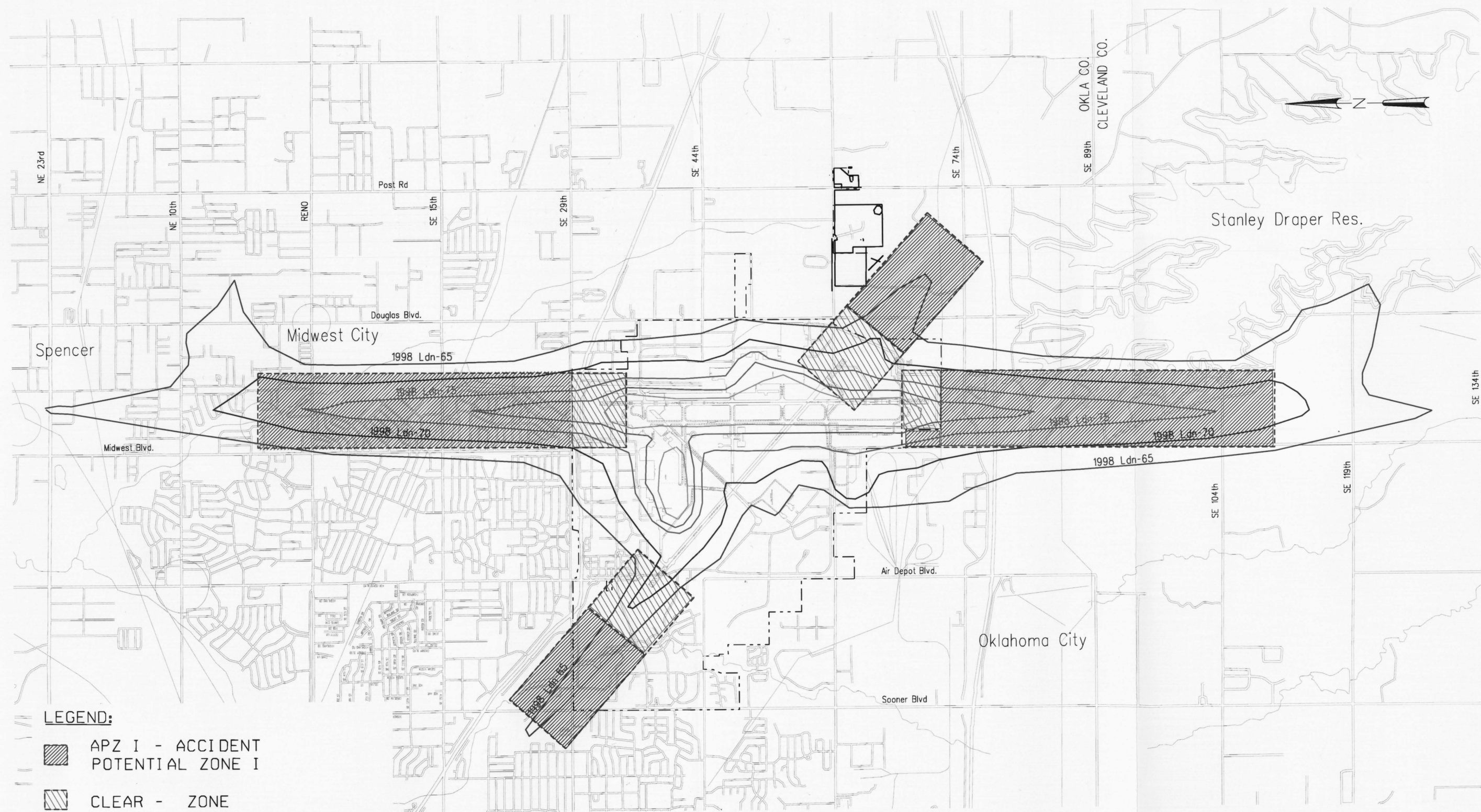
Surface water bodies at Tinker AFB, excluding wetland areas, consist of 3 creek systems and 13 ponds and detention basins (see figure 3-3). The major on-base creek systems are Soldier Creek and Crutch Creek with its tributaries, including Kuhlman Creek. Most of the base drainage is via the Crutch Creek system. Within the boundaries of Tinker AFB, Crutch Creek traverses a total of approximately 8 linear miles. The Crutch Creek system originates south of the base and flows northward across the base, eventually draining into the North Canadian River several miles north of the base. Soldier Creek and Crutch Creek both drain headwaters of the Canadian River drainage basin. The Oklahoma City sanitary sewer system receives both untreated domestic wastewater and permitted discharges from the base IWTP; there is no treated wastewater discharge to surface waters on the base. The extreme southeastern corner of Tinker AFB drains to Stanley Draper Lake, located about 1 mile south of the base. Drainage in this portion of the base is via Elm Creek and an unnamed creek, both of which are ephemeral.

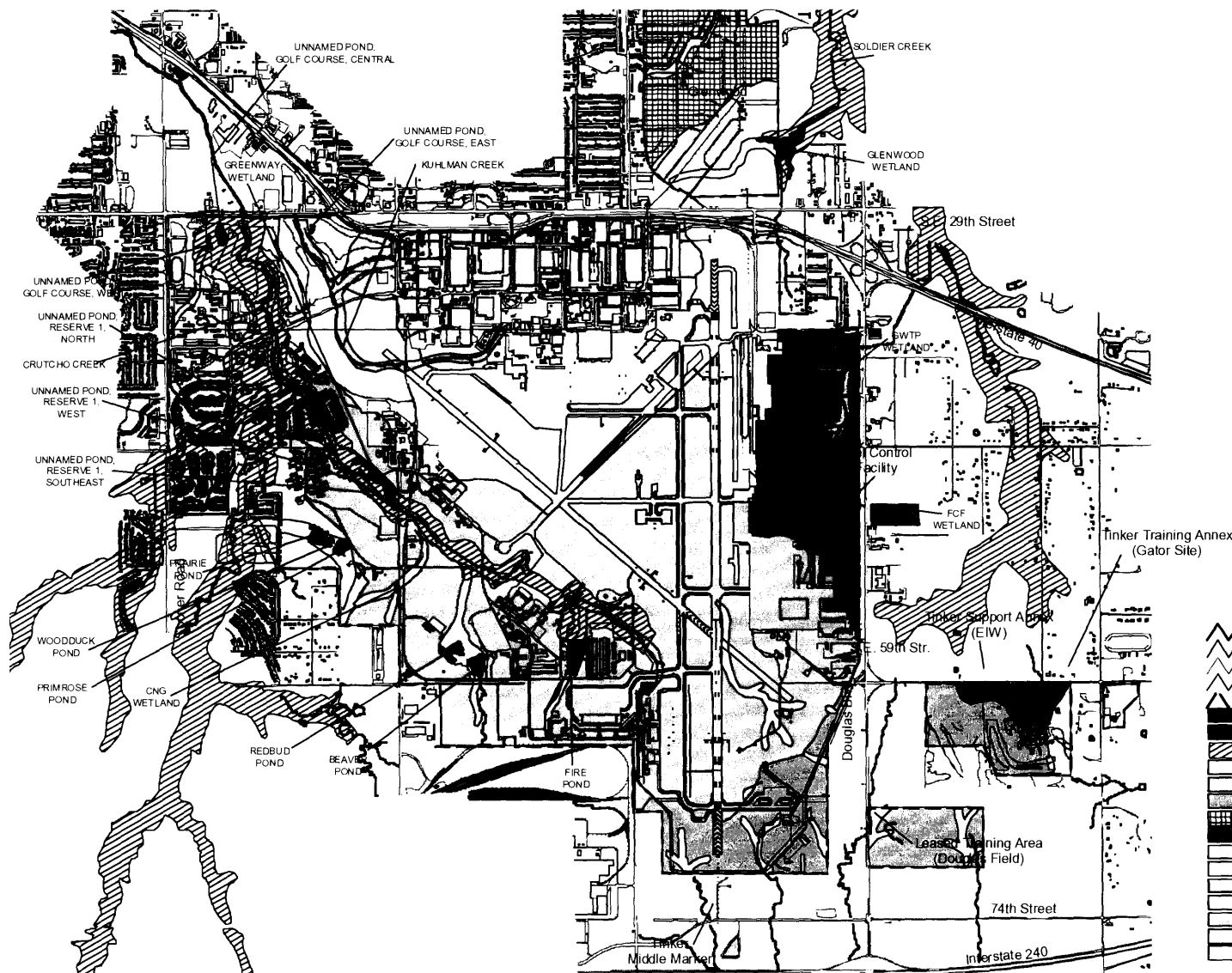
The USACE recently revised the floodway and floodplain calculations for the northwestern portion of the base, including the Crutch Creek watershed (see figure 3-4). Two of the potential locations for the Collocated Club are within mapped floodplain areas (see figure 3-4).

3.3.5 Hazardous and Toxic Materials and Wastes

All hazardous waste generated at Tinker AFB and sent for disposal is tracked from "cradle to grave." This tracking function is currently being converted to a computerized system being adopted by the USAF, known as the Hazardous Material Management System. A number of hazardous materials are stored and used at Tinker AFB. Most of the materials are related to aircraft use and maintenance (i.e., jet fuel, oil, hydraulic fluid, paint, paint thinners, and various solvents and cleaners). According to the *General Plan*

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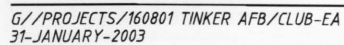
- Not to Scale
SOURCE: Tinker AFB 1991, 1997
- ~ CREEKS
 - BUILDINGS
 - STREETS
 - RUNWAY
 - TINKER AFB BOUNDARY
 - POND
 - WETLANDS
 - 100 YEAR FLOODPLAIN
 - LOTIC SURFACE WATERS (Intermittent and/or Ephemeral)
 - LOTIC SURFACE WATERS (Perennial)
 - EAST ELM CREEK WATERSHED (STANLEY DRAPER LAKE)
 - SOLDIER CREEK WATERSHED
 - EAST SOLDIER CREEK WATERSHED
 - WEST SOLDIER CREEK WATERSHED
 - KUHLMAN CREEK WATERSHED
 - KUHLMAN CREEK TRIBUTARY WATERSHED
 - WEST CRUTCHO CREEK WATERSHED
 - EAST CRUTCHO CREEK WATERSHED
 - CRUTCHO CREEK WATERSHED
 - WEST HOG CREEK WATERSHED (THUNDERBIRD LAKE)

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SOURCE: Tinker AFB Integrated Natural Resources Management Plan, 1999.

File Path: G:\projects\2NM\Plans\Collocated Club EA.apx Date: 03 Feb 2003 User: DABERORO HEP EA Figure 3-3

FIGURE 3-3
100-Year Floodplains and Surface Water Features
Collocated Club EA
Tinker AFB, Oklahoma



(Tinker AFB, 2000b), the base generated approximately 3,000 tons of hazardous waste in 1999. Since 1991, Tinker AFB has received no Notices of Violation from annual State and EPA inspections of its hazardous waste program. Tinker AFB has reduced its hazardous waste generation by at least 50 percent from the 1992 baseline, reaching a mandated EO goal of 50 percent reduction by 1999.

All of the materials used on the base are stored, used, and disposed in accordance with the Tinker AFB Spill Prevention Plan, the SARA Title III Response Plan, the Stormwater Pollution Prevention Plan (SW3P), and other applicable local, state, and federal laws and regulations.

According to the *General Plan* (Tinker AFB, 2000b), the State of Oklahoma issued a permit to proceed with construction of a new storage facility where hazardous waste can be stored for as long as 1 year. This facility is completed and a new RCRA Part B permit is being finalized. This facility (building 809) would replace the previous hazardous waste storage facility. Moreover, Tinker AFB has implemented an EPA Universal Waste Program, which reduces Tinker AFB's liability for the accumulation of batteries, fluorescent bulbs, mercury thermostats, and pesticides. As a result of this program, these materials are no longer included in Tinker AFB hazardous waste generation numbers.

Tinker AFB Instruction 32-7004, *Hazardous Waste Management*, contains information needed to comply with all federal, state, USAF, and local rules and regulations pertaining to hazardous waste. Other applicable documents include the *RCRA Operating Permit* for long-term storage of hazardous waste and OC-ALC Plan 19-2, *Tinker AFB Spill Prevention and Emergency Response Plan*.

There are approximately 180 Initial Accumulation Points, 469 Waste Staging Areas, 2 Accumulation Sites (less than 90 days), and 1 permitted building for the accumulation and storage of hazardous waste at Tinker AFB. Hazardous wastes generated at the base are collected in 55-gallons drums at the Initial Accumulation Points and Waste Staging Areas, then transported to one of the Accumulation Sites. At the Hazardous Waste Management Facility (building 808), samples from the drums are collected for analysis at the environmental laboratory. Results of those analyses and other information are entered into a computer program that serves as a data file for compliance purposes and also tracks the waste from the time it is generated in a Tinker AFB industrial shop until it is treated or disposed at an offsite facility. When the procedures at the Hazardous Waste Management Facility are complete, the drums are transported to building 809. The Defense Reutilization and Marketing Office (DRMO) is charged with maintaining the wastes until they can be shipped off-base to a properly permitted treatment, storage, or disposal facility.

3.3.6 IRP

Tinker AFB's Environmental Management Programs Engineering Branch (EMPE) is responsible for conducting and managing the restoration of past contamination sites on the base. The EMPE oversees restoration activities on 40 IRP sites (Figure 3-5); six of these are listed as operable units (OU) on the National Priorities List (NPL).

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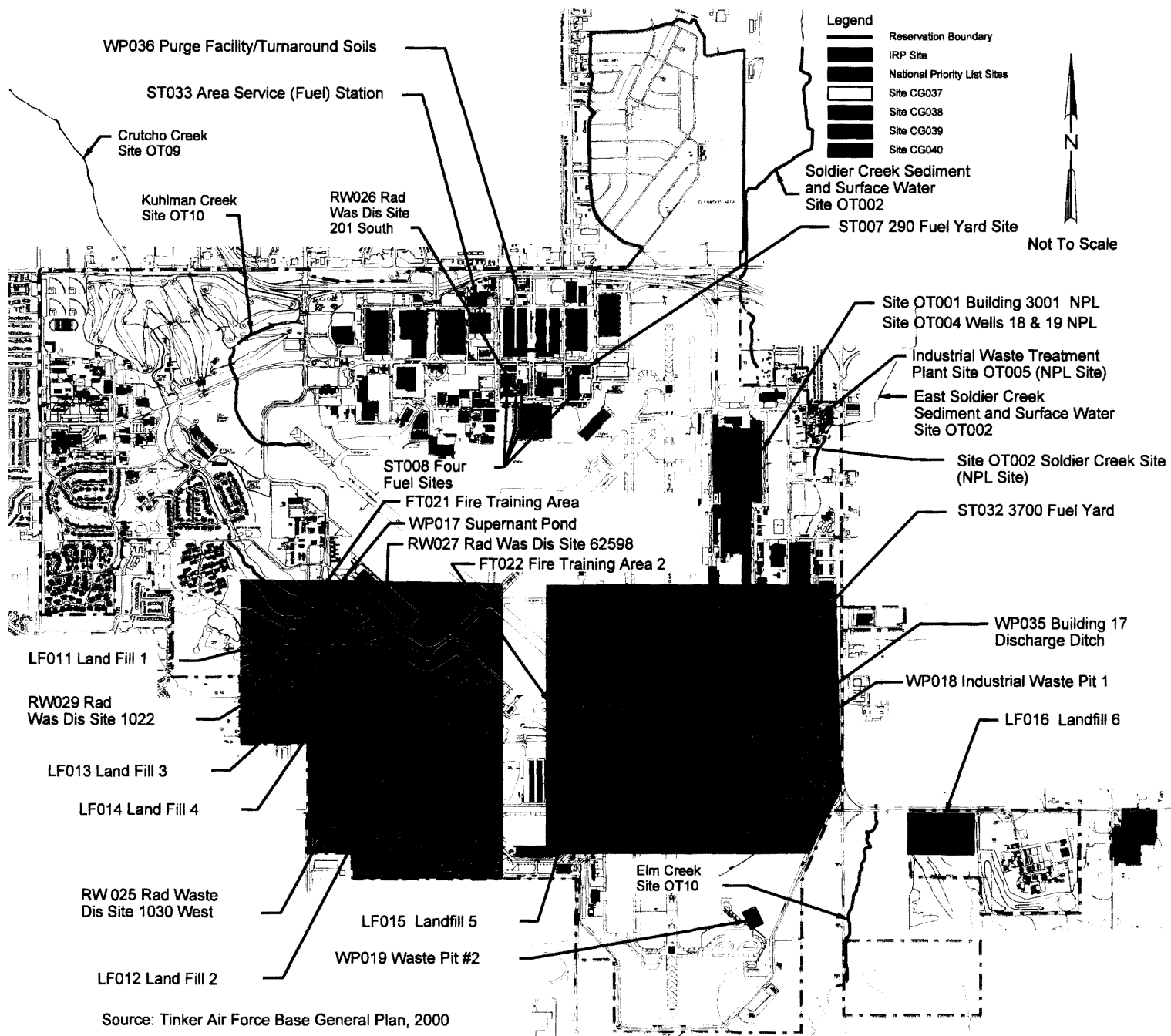


FIGURE 3-5
 IRP Sites
 Collocated Club EA
 Tinker AFB, Oklahoma

Of the 40 sites listed under the Tinker AFB IRP, 15 have been cleaned up and closed. Nine IRP sites are scheduled to be closed by 2010, 3 by 2020, and the remaining 13 by the year 2028. Prior to demolition of buildings in or near these contaminated sites, the sites should be reviewed for compliance with specific environmental restoration regulations.

3.3.7 Terrestrial Biota

Flora

There are seven predominant vegetative associations at Tinker AFB (see figure 3-6). The vegetative communities are described in the *Tinker AFB Natural Resources Management Plan* (Tinker AFB, July 2000). Fifty percent of the base's acreage is under buildings, pavements, railroads, and other structures. The primary vegetation types are:

- **Prairie** (2.0 percent) - Dominated by grasses characteristic of a native climax tallgrass prairie (i.e., big bluestem [*Andropogon gerardii*], little bluestem [*Schizachyrium scoparium*], switchgrass [*Panicum virgatum*], and indiangrass [*Sorghastrum nutans*]).
- **Grassland** (19.6 percent) - Successional stage of native and/or exotic grasses and forbs. Historically a grassland community, but altered considerably by mowing, soil borrowing, military training, etc., and, thus assuming a successional stage.
- **Forest/Woodland** (1.0 percent) - A close stand of trees in a natural area with minimal human disturbance (forest) or an open growth of trees in a natural area (woodland) associated mainly with riparian zones.
- **Transitional Forest/Woodland** (2.3 percent) - Successional stage of native and exotic trees in a closed (forest) or open (woodland) stand. Occurs in areas of past human activity; typically located along man-made canals, channelized creeks, or other disturbed areas.
- **Urban/Industrial** (17.9 percent) - Dominated by turfgrass, associated forbs, and ornamental herbaceous and woody plants. Occurs on developed land that is intensively maintained (e.g., golf courses, parks, residential areas, sports fields).
- **Transitional Urban/Industrial** (7 percent) - Characterized by native and exotic plants with a predominance of ornamental vegetation. Typically occurs on developed land that has been abandoned and is no longer subject to intensive human influence (e.g., Glenwood Training Area).
- **Wetland** (0.2 percent) - Dominated by mesic/hydrophytic plants and located in areas that are temporarily or permanently inundated with water.

The Field and Urban/Industrial vegetation types represent most of the vegetative cover at Tinker AFB. These two vegetation types also represent most of the vegetative cover at and in the vicinity of the military family housing area.

Within land areas that have been converted to urban and industrial use, the plant community comprises primarily turf grasses and ornamental trees and shrubs. The

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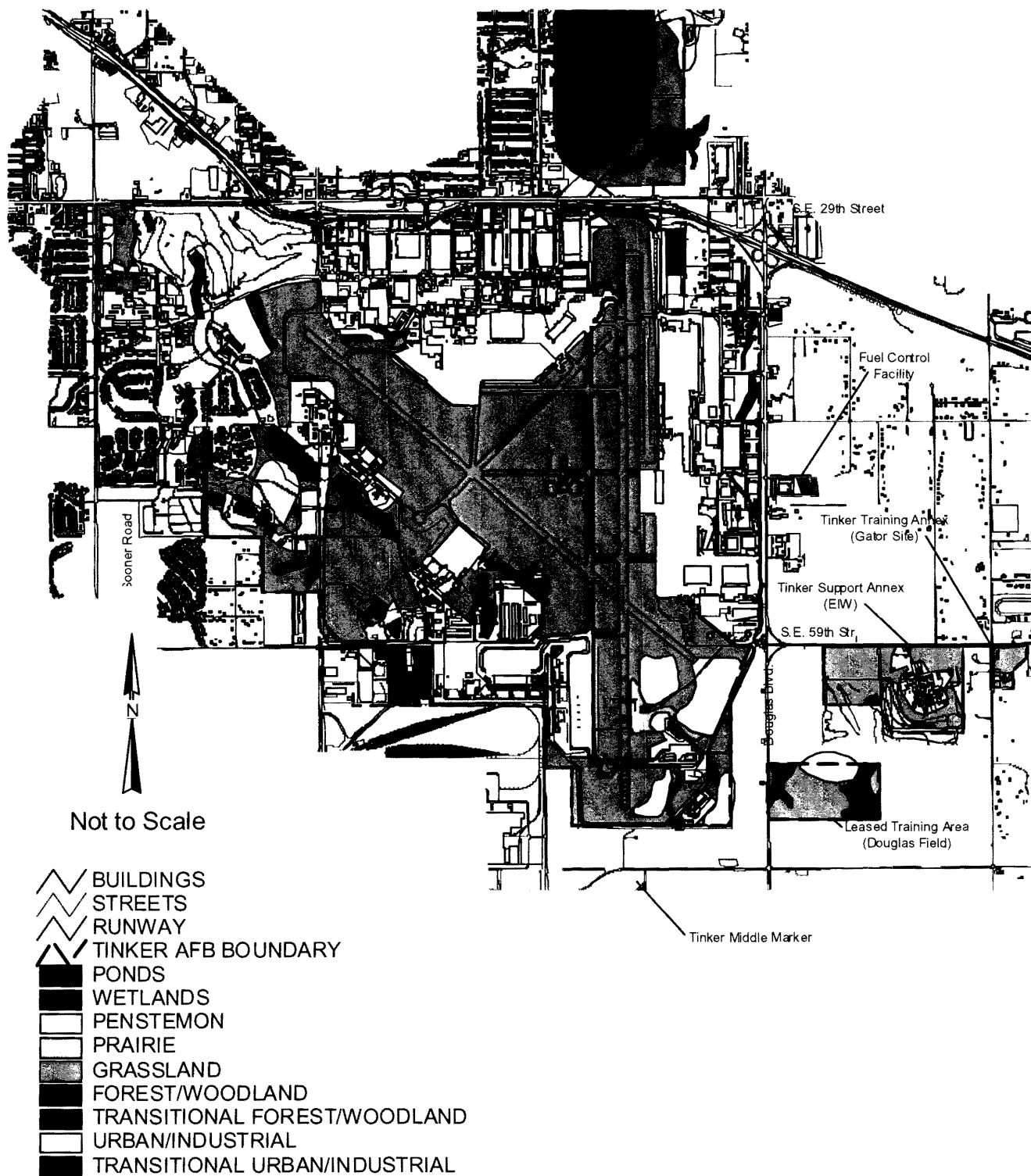


FIGURE 3-6
Vegetation Types
Collocated Club EA
Tinker AFB, Oklahoma

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SOURCE: Tinker AFB Integrated Natural Resources Management Plan, 1999
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predominant turfgrass on Tinker AFB is Bermuda grass. Native buffalograss is often found mixed with Bermuda grass. Other more rural areas typically include a mixture of exotic and native plants. Trees and shrubs include native and exotic plants, and, unlike the pre-settlement plant distribution, many woody plants are found on upland, as well as bottomland, sites.

Fauna

Terrestrial fauna at Tinker AFB is limited primarily to urban wildlife species. The base is divided into three wildlife management units and several wildlife migration/movement corridors that are located primarily along the riparian zones of the on-base creeks. Most of the wildlife within the boundaries of Tinker AFB traverse the movement corridors and pockets of undeveloped areas.

Tinker AFB is classified as a Category 1 installation (i.e., base has suitable habitat for conserving and managing fish and wildlife, AFI 32-7064). The occurrence of over 200 native and exotic vertebrate species has been documented on base property. This includes resident and migratory populations of 21 mammals, 129 birds, 22 reptiles, 10 amphibians, and 23 fish. Tinker AFB's species list has been compiled through much inventory-related work, such as bird-aircraft strike hazard (BASH) surveys, sensitive species surveys, fish kill investigations, and others. Seasonal, class-specific inventories are needed, however, to fully characterize the base's fish and wildlife species composition.

Typical wildlife species sighted within the boundaries of Tinker AFB include mammals, birds, and herptiles (amphibians and reptiles). Common mammals include the eastern fox squirrel (*Sciurus niger*), eastern cottontail rabbit (*Sylvilagus floridanus*), beaver (*Castor canadensis*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Common birds are mourning dove (*Zenaidura macroura*), barn swallow (*Hirundo rustica*), red-winged blackbird (*Agelaius phoeniceus*), meadowlark (*Sturnella* spp.), scissor-tailed flycatcher (*Tyrannus forficatus*), bobwhite quail (*Colinus virginianus*). Common herptiles include the Texas horned lizard, three-toed box turtle (*Terrapene carolina*), and bullfrog (*Rana catesbeiana*).

The results of fish surveys at Tinker AFB indicate that 23 species of fish occur on-base. Five species of fish occur in ponds located on-base, and 18 species occur in those portions of Crutch, Kuhlman, and Soldier Creeks that are located on-base.

Tinker AFB's warm-water sport fisheries provide for consumptive uses. Currently, Prairie, Primrose, Redbud, Beaver, and Fire Ponds are managed for a largemouth bass and bluegill fishery. Channel catfish are also stocked on a put-and-take basis (i.e., not a self-sustaining or reproducing population). Other sport fish found in the base's ponds include red-ear sunfish, hybrid sunfish (bluegill X red-ear), green sunfish, and white crappie. The base's fishing program is managed under a permit/license system through the base Outdoor Recreation.

3.3.8 Threatened and Endangered Species

Based on the Tinker AFB NRMP, there are no flora classified as state or federal species of concern or threatened and endangered species. However, the Oklahoma penstemon,

which is classified as rare under the ONHI Program, is found at numerous locations on the base. This cool-season forb has a global ranking of G3 (either very rare and local throughout its range, or found locally, even abundantly at some of its locations, in a restricted range, or because of other factors making it vulnerable to extinction throughout its range; in the range of 21 to 100 occurrences) and a state ranking of S3 (rare in Oklahoma; in the range of 21 to 100 occurrences).

The current trend of Tinker AFB's native grassland floral community, which includes the Oklahoma penstemon, is downward. Remnant prairie acreage continues to decrease with base expansion, and the condition of remaining relatively protected areas is diminishing because of the invasion of woody plants and non-native species.

No threatened or endangered fauna species are known to be present on Tinker AFB. However, several sensitive species are present. These species and their current status are presented in table 3-1.

The Texas horned lizard occurs primarily in sparsely vegetated grassland areas in the southwestern corner of the base, with isolated pockets in the southeastern and northern parts of the base (see figure 3-7). Loggerhead shrikes occur basewide. Barn owls have been observed mostly on the northeastern side (Glenwood and near the IWTP) of the base. Swainson's hawks occur basewide and have historically nested along Kuhlman Creek, south of the golf course. Burrowing owls have been sighted on the airfield and in Reserve 3 of the Urban Greenway; these appeared to be winter visitors and have not been known to nest on-base. Orchard oriole occurrence is known by a single 1990 sighting at the extreme southern end of the base, adjacent to General Motors (GM) property west of the Navy complex.

TABLE 3-1
Sensitive Species at Tinker AFB

Common Name	Scientific Name	Status
Texas horned lizard	<i>Phrynosoma cornutum</i>	FSC
Migrant loggerhead shrike	<i>Lanius ludovicianus migrans</i>	FSC
Barn owl	<i>Tyto alba</i>	SSSC
Swainson's hawk	<i>Buteo swainsoni</i>	SSSC
Burrowing owl	<i>Athene cunicularia</i>	SSSC
Orchard oriole	<i>Icterus spurius</i>	SSSC

FSC Federal Species of Concern
SSSC Oklahoma State Species of Special Concern

3.3.9 Economic Resources

Employment

Labor force is defined as all persons residing in an area who are 16 years or older, employed or unemployed, excluding full-time students, homemakers, and retirees. According to the Bureau of Labor Statistics (BLS), as of April 1999, the total civilian labor

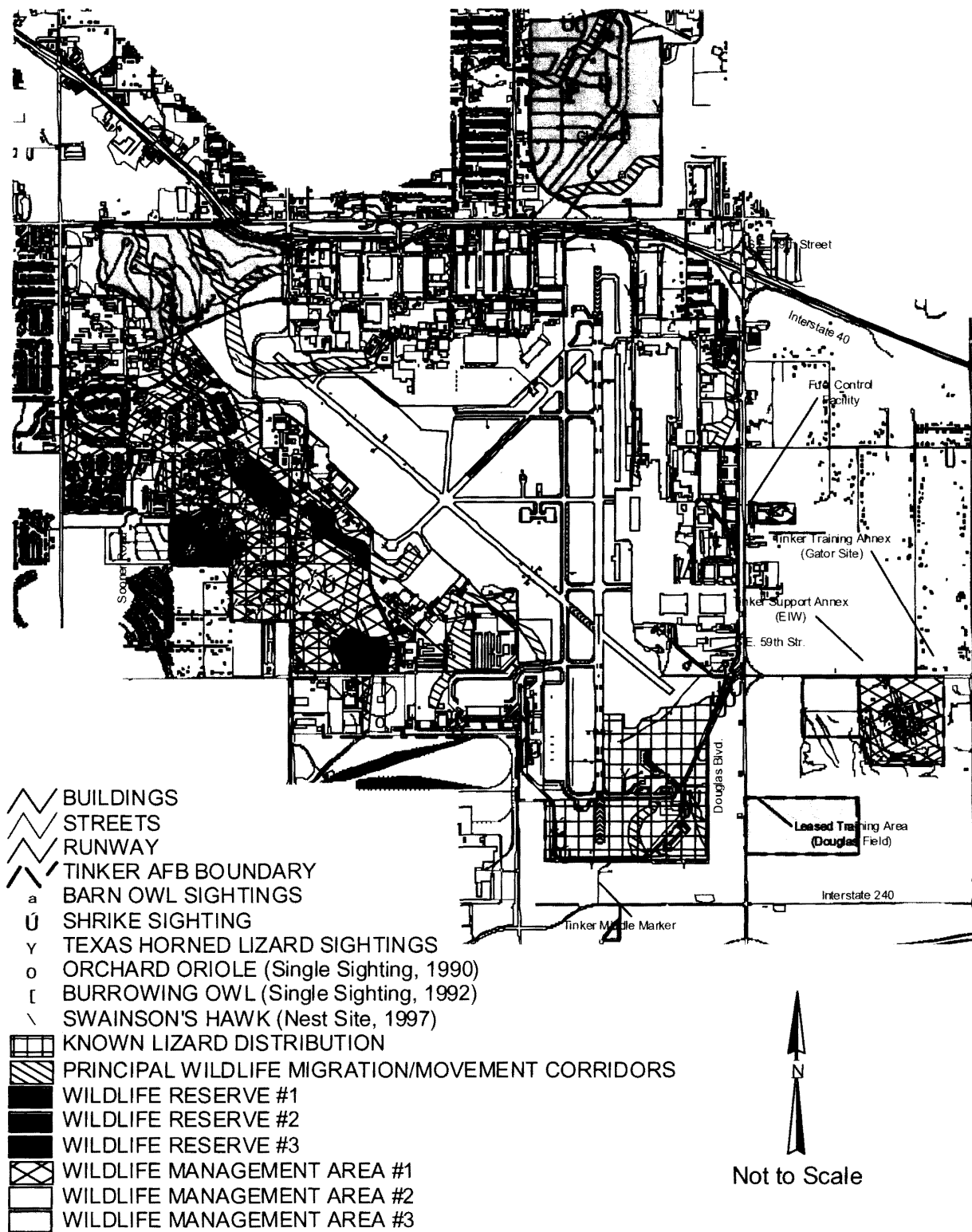


FIGURE 3-7

Texas Horned Lizard Distribution
Collocated Club EA
Tinker AFB, Oklahoma

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SOURCE: Tinker AFB Integrated Natural Resources Management Plan, 1999.

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force of Oklahoma County was 326,724 persons and the unemployment rate was 3.2 percent. The statewide unemployment rate was 3.9 percent and the nationwide unemployment rate was 4.1 percent.

The labor force of Oklahoma City proper was 246,875 persons, with an unemployment rate of 3.3 percent. The two other incorporated areas in the County—Del City and Midwest City—had labor forces of 12,374 and 27,320, respectively. The unemployment rate in Del City (3.8 percent) was higher than that of the County, Oklahoma City, or Midwest City (3.2 percent). The Oklahoma City Metropolitan Statistical Area (MSA) has a labor force of 536,724, with an unemployment rate of 3.1 percent (BLS, 1999).

In 1997, there were 627,161 full-time and part-time jobs in the Oklahoma City MSA. In Oklahoma County, there were 475,381 full-time and part-time jobs. The private sector provided more than 80 percent of those jobs. The services sector provided about 30 percent of all jobs in the area, followed by retail trade (18 percent), and state and local government (13 percent) (U.S. Bureau of Economic Analysis [BEA], 1997).

Tinker AFB is the largest single-site employer in Oklahoma (Oklahoma Department of Commerce [ODOC], 2002).

Income

In 1997, per capita personal income in Oklahoma County was \$23,236, the fourth highest in the state. The per capita income of the County was 14 percent higher than the statewide per capita income of \$20,305 and 92 percent of the national per capita income of \$25,288. Per capita personal income is the sum of personal income, including wages and salaries, dividends, and transfer payments in an area, divided by total population. The average wage per job (wage and salary income divided by employment) in the Oklahoma City MSA was \$24,227 in 1996, compared to a statewide average of \$23,087 (BEA, 1999). The Oklahoma City MSA had a per capita personal income of \$21,659 in 1997.

Installation Contribution to the Local Economy

The Tinker AFB work force totals approximately 24,195 persons. This figure includes 7,791 active duty military, 1,368 reserve duty, 12,765 civil service, and 2,271 non-appropriated funds civilian personnel working on-base. In addition to the base work force, it is estimated that Tinker AFB generates approximately 30,000 secondary jobs, most of which are within the MSA. In 2000, Tinker AFB's yearly payroll of \$734 million provided an estimated \$1.8 billion economic boost, impacting the entire state of Oklahoma, of which \$1.4 billion is concentrated in the MSA. Indirect employment created by Tinker AFB helps bring an additional \$734 million into Oklahoma's economy. (Tinker AFB, 2000).

3.3.10 Land Use

Regional Land Use

Tinker AFB is bordered by Midwest City to the north, Del City to the west, and Oklahoma City to the east and south. Portions of Oklahoma City to the south and southwest contain a major Atchison, Topeka, and Santa Fe (AT&SF) railroad yard; a

large-scale GM manufacturing facility; and other industrial land uses. To the south of the base are undeveloped land areas buffering Stanley Draper Lake and the proposed West Elm Creek Reservoir. The areas to the east and southeast are either undeveloped or lightly developed, with scattered residential land uses (rural, non-farm homes). The Oklahoma City 2010 Land Use Plan describes the following general land use patterns for areas adjoining Tinker AFB:

- An Industrial Reserve lies to the east of the base, south of Interstate (I)-40 and north of I-240.
- The area adjoining the southern border of the base is designated for open space and environmental conservation.
- The southwestern border between Southeast 74th Street and Southeast 59th Street is classified for Standard Industrial uses.
- The western border between Southeast 59th Street and Southeast 44th Street is classified as Urban Low Density (2 to 5 units/acre).

The areas of Midwest City, to the north of the base, are extensively developed with residential and commercial land uses. In general, commercial and light industrial land uses extend north/south along Southeast 29th Street, Air Depot Boulevard, and Douglas Boulevard. Midwest City has a range of residential uses, varying in density from single-family residential to high-density multifamily residential and mobile home parks. These residential areas tend to be clustered within the commercial and industrial corridors along the major roads.

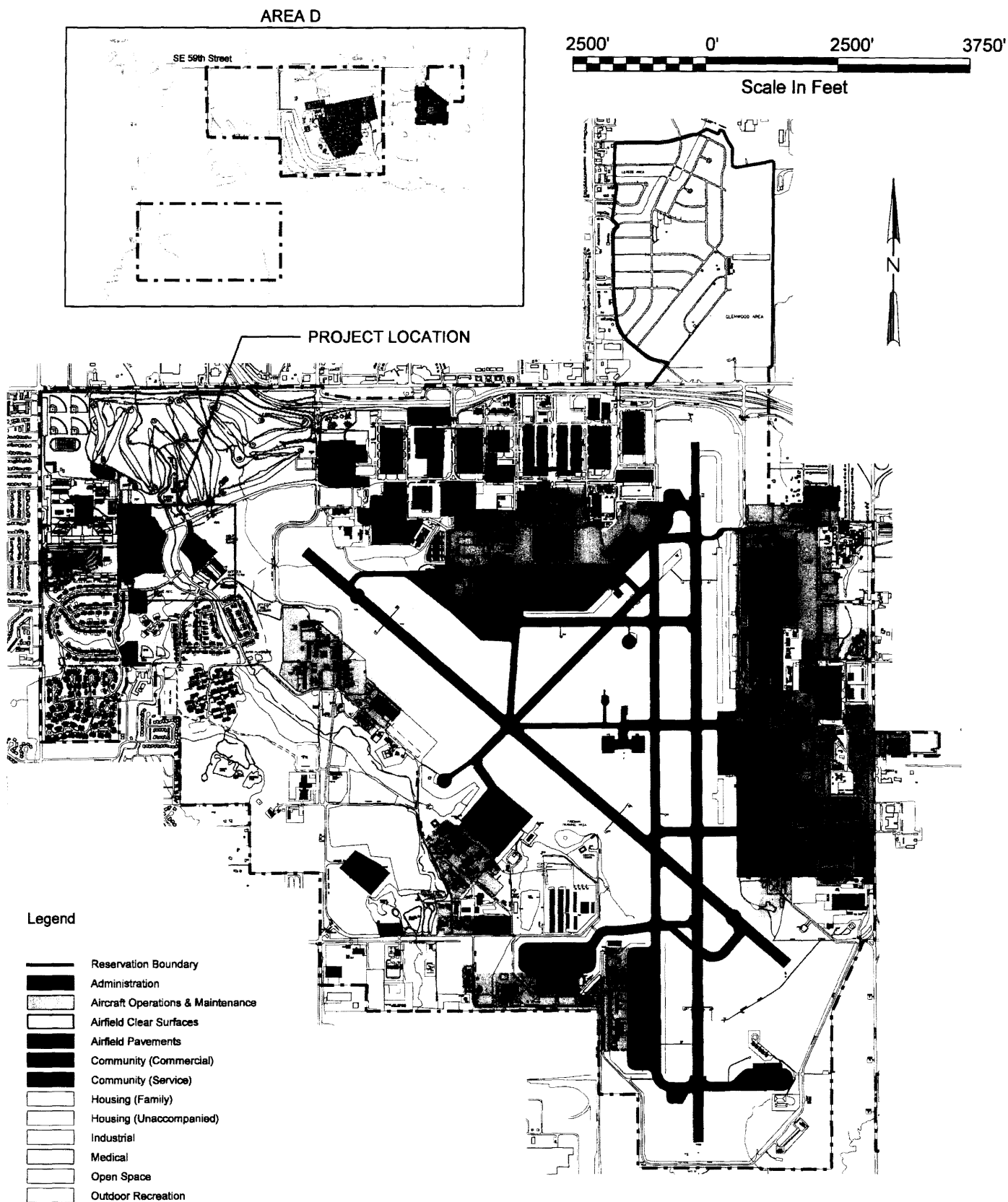
Del City is separated from Tinker AFB by Sooner Road, which extends north/south between Southeast 44th Street and I-40. Land use bordering the northwestern edge of Tinker AFB is primarily low-density residential. Commercial and medium-density residential land uses are concentrated along Southeast 29th Street.

On-base Land Use

Table 3-2 provides a profile of the existing land use on Tinker AFB. The base's 5,044 acres are grouped into land use categories that range from unaccompanied and accompanied housing to administration, industrial, and outdoor recreation (see figure 3-8).

Approximately 40 organizations are based at Tinker AFB. The primary tenants and/or uses are:

- OC-ALC, which provides worldwide logistics support for a variety of weapon systems.
- 38th Engineering Installation Group (EIG), which is responsible for the worldwide engineering and installation of all communication and electronic facilities for the Air Force.
- 552nd Air Control Wing (AWAC), which flies the E-3 Sentry aircraft and is part of the Air Force's Air Combat Command mobile strike force.



Source: Tinker Air Force Base General Plan, 2000

FIGURE 3-8
Existing Land Use
Collocated Club EA
Tinker AFB, Oklahoma

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TABLE 3-2
Existing Land Use Categories

Land Use Type	Tinker AFB (acres)	Percent of Base Total
Airfield (pavements)	519	10%
Aircraft Operations and Maintenance	499	10%
Industrial	525	10%
Administration	75	2%
Community Commercial	65	1%
Community Service	36	1%
Medical	28	1%
Housing Accompanied	179	4%
Housing Unaccompanied	59	1%
Outdoor Recreation	304	6%
Open Space	992	20%
Other	1,763	35%
Total	5,044	100%*

Note: *Numbers may not sum to 100% due to rounding

- 507th Air Refueling Wing (Air Force Reserve), which is an Air Force Reserve flying unit that provides depot maintenance for the wing's KC-135R aircraft and engines. The Wing also supports U.S. Military and North Atlantic Treaty Organization (NATO) aircraft with aerial refueling and AWAC missions worldwide.
- 72nd Air Base Wing (ABW), which is the host organization for Tinker AFB and provides operational support for the base, as well as associated off-base activities.
- 3rd Combat Communications Group, which provides communications and navigational aid at any location in the Western Hemisphere.
- Navy E-6 Squadron (STRATCOMMWING ONE), which provides a vital, secure communications link to the submerged fleet of ballistic missile submarines.
- The Defense Distribution Depot Oklahoma, which provides the receipt, storage, issue, inspection, and shipment of material, including material quality control, preservation, packaging, inventory, transportation functions, and pickup and delivery services in support of OC-ALC and other Tinker-based organizations.
- The Defense Megacenter Oklahoma City, which is the local branch of the Defense Information Systems Agency. The Megacenter operates computer systems for the base and serves 110 other bases in 46 states.

3.3.11 Utilities

Utility usage at Tinker AFB is approximately 60 percent of actual capacity on an annual basis. Seasonal peaks in water, chilled water, and electricity usage occur in the summer. These peaks coincide with the increased demand for air conditioning and irrigation

water. Table 3-3 presents the annual utility consumption at Tinker AFB for fiscal year (FY) 1997.

TABLE 3-3
Annual Utility Usage for Tinker AFB in FY97

Utility	Annual Usage
Base-produced Potable Water (groundwater)	880,757,000 gallons
Purchased Potable Water	24,452,000 gallons
Sanitary Sewerage	363,428,000 gallons
Process Wastewater	113,256,000 gallons
Industrial Wastewater	665,663,000 gallons
Electricity	353,025 megawatt hours
Natural Gas	2,149,246,000 cubic feet
Steam	1,986,640,000 British thermal units
Compressed Air	4,992,900,000 cubic feet
Chilled Water (base-produced)	50,168,104 tons per hour

Note:

Usage for steam, compressed air, and chilled water is based on hours of operation at plant capacity.

All but 3 percent of the potable water used on Tinker AFB is produced on the installation from groundwater wells. The remaining potable water used on the base is purchased from the surrounding communities. All of the wastewater generated on-base is piped to wastewater treatment facilities in the surrounding communities. The base treats industrial and process wastewater, as needed, to meet effluent and treatment plant requirements before it leaves the base. Steam, compressed air, and chilled water are produced on the base.

The Tinker IWTP treats industrial wastewater generated on the base and discharges to the Oklahoma City sanitary sewer. Domestic wastewater is not treated on-base, but is conveyed to the Oklahoma City wastewater collection system through a transfer line. The flow is metered at the transfer point for billing purposes. The collection system lines are clay-tile construction and were constructed in the 1940-1950 time frame.

Tinker AFB receives its electrical power from Oklahoma Gas and Electric (OG&E), which provides two 69-kV feeder lines to each of the four substations on the base. The base maintains the distribution system. The electrical supply to Tinker AFB is adequate, with approximately 40 percent excess capacity. A substation with two 20-MVA transformers is needed within the ALC to support building 3001 and the vicinity.

Tinker AFB receives its natural gas from Oklahoma Natural Gas. The gas is then distributed throughout the base. The natural gas supply to the base is adequate to meet existing needs and provide for expansion. Many lines and valves are old and deteriorated, however, and are in need of replacement or upgrading.

3.3.12 Solid Waste

Tinker AFB generates a variety of solid wastes. Solid waste materials are disposed through one of three mechanisms: 1) collected, hauled off-base, and disposed by a licensed contractor; 2) offered for sale through DRMO; or 3) incinerated on post. In FY2001, approximately 10,742 tons of solid waste were generated at Tinker AFB. Of that volume, approximately 2,280 tons, or 21.2 percent, were recycled. Cardboard, mixed paper, and wood make up the majority of the recyclable materials by weight. Curbside recycling is managed and operated by the Services Division and includes newspaper, aluminum cans, glass, metal, food cans, along with plastic processing and storage prior to direct sale. Industrial recycling on-base includes cardboard, mixed paper, scrap metal, industrial metal, tires, and concrete. Basewide collections are picked up by the Civil Engineering waste contractor and transported to the recycling operational centers for processing or to the DMRO for resale. The implementation of concrete recycling during numerous construction projects and runway renovations increased the recycled tonnage and significantly reduced Tinker AFB's landfill requirement. Tinker AFB exceeds the Air Force Materiel Command (AFMC) Solid Waste Measure of Merit annual target by diverting 65 percent of the total solid waste generated.

3.3.13 Transportation

Roadways and Traffic

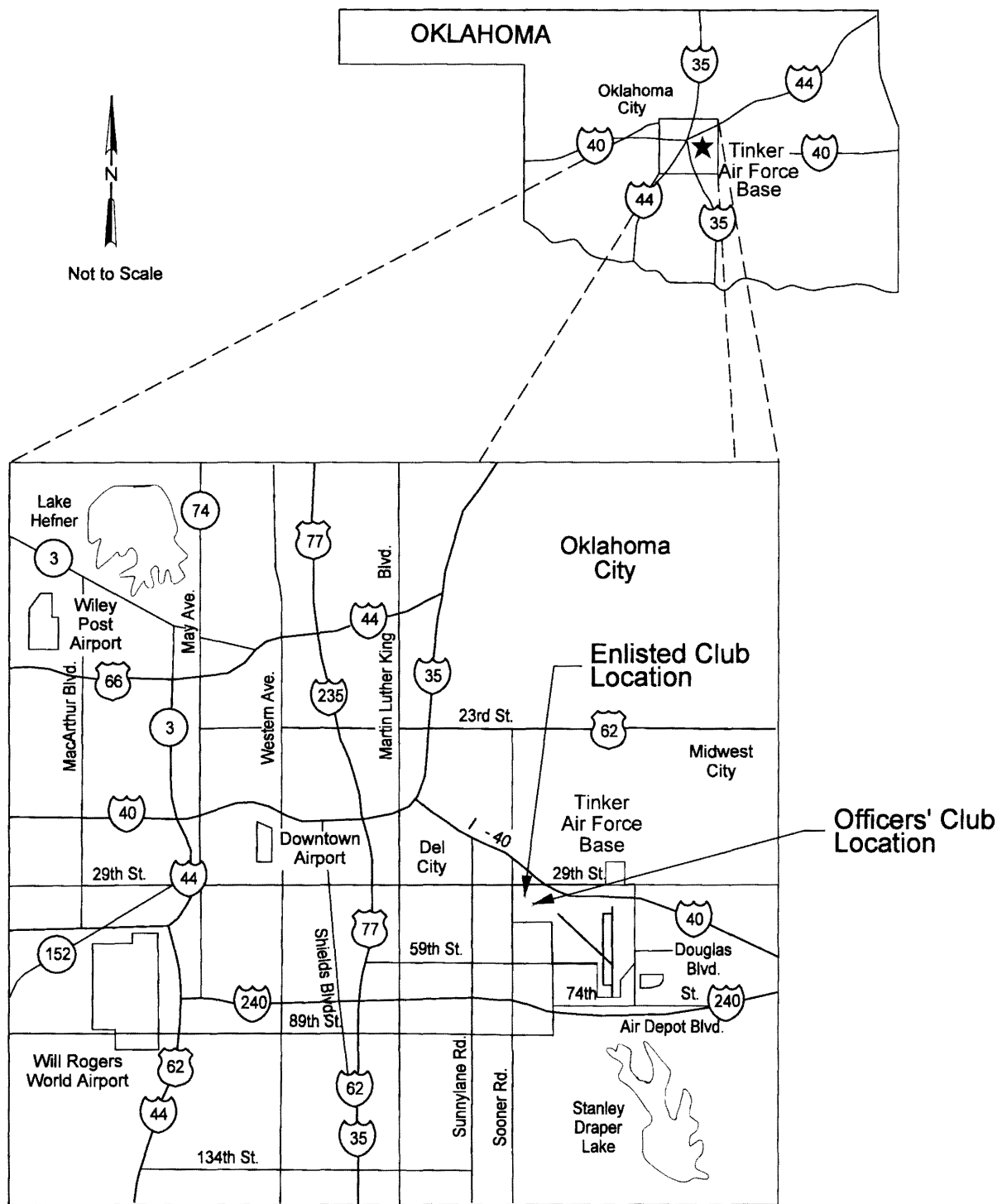
Tinker AFB is located in the center of Oklahoma, approximately 5 miles southeast of the Oklahoma City central business district. As presented in figure 3-9, a network of interstate highways, regional and local arterials, and local collector streets serves Tinker AFB. I-35, 40, 44, and 240 serve regional, interstate, and intrastate traffic in the region. I-40 extends east/west through Oklahoma City and provides direct access to the northern gates by interchanging with several arterials and collectors that serve the base. I-240 also extends east/west just south of the City and the base, providing connections to I-35, I-44, and I-40. I-240 provides access to the base via interchanges at Sooner Road, Air Depot Boulevard, and Douglas Boulevard.

Several major regional arterials surround the base and provide local and regional access. Southeast 29th Street extends east/west and forms the northern border of the base. Sooner Road and Air Depot Boulevard extend north/south and partially form the western boundaries of the post. Douglas Boulevard, also a north/south arterial, forms the eastern boundary of the base. Southeast 59th Street and Southeast 74th Street form the southern boundaries and serve east/west traffic.

Access to Tinker AFB

Access to Tinker AFB is via 11 gates located around the perimeter of the base. Gate locations and numbers are shown in figure 3-10. Operations at the gates vary from 24 hours per day to fenced operations used on an as-needed basis. Tinker, Gott, and Lancer Gates are the most active gates and operate 24 hours per day. Eaker gate operates from 0600 hr to 1800 hr on weekdays. Hruskocy, Liberator, Marauder, and Vance Gates operate on weekdays, only during peak traffic periods in the morning and afternoon. Gate 3 (Turnbull Gate) is permanently closed and the Glenwood Gate is fenced and only used on an as-needed basis.

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Source: Adapted from Rand McNally Atlas, 1991

FIGURE 3-9
Regional Transportation Map of Tinker Air Force Base
Collocated Club EA
Tinker AFB, Oklahoma

CH2MHILL

G://PROJECTS/160801 TINKER AFB/CLUB-EA
30-SEPTEMBER-2002

Public Transportation

Public transportation external to the base is provided by the Central Oklahoma Transportation and Parking Authority (COTPA), commonly referred to as Metro Transit. Internal public transportation is also provided by a bus shuttle that runs once per hour.

3.3.14 Cultural Resources

Two historic property types have been identified at Tinker AFB: 1) facilities associated with aircraft construction and modification, 1942-1946, and 2) facilities associated with the Cuban Missile Crisis, 1962. The Douglas Cargo Aircraft Manufacturing area has been designated as a historic district. This area consists of a very large aircraft assembly building (building 3001) and structures surrounding building 3001 which contributed to the World War II wartime mission of the Douglas Cargo Aircraft Manufacturing Plant. This district, located within the Air Logistics Center, contains 9 contributing resources (as indicated in table 3-4) and 12 non-contributing resources (buildings). The contributing elements comprise about 90 percent of the area occupied by buildings within the district, primarily as a result of the size of building 3001. Table 3-5 summarizes other historically significant facilities.

TABLE 3-4
Historic District Contributing Facilities

Building	Former Function	Current Function
3001	Douglas Assembly Building	Jet Engine Maintenance Shop
3102	Modification Hangar	Maintenance Hangar
3105	Paint Facility	Maintenance Hangar
3108	Paint Storage Facility	Aircraft & Engine Shop
3113	Woodworking Mill	PME Lab
3202	Fire Pump Station	Fire Pump Station
3203	Fire Protection Water Storage	Fire Protection Water Storage
3204	Switch Gear House	CE Maintenance Shop
3303	Pump House	Pump House

TABLE 3-5
Historically Significant Facilities

Building	Former Function	Current Function
1	Depot Supply	Depot Supply
208	Steam Plant	Steam Plant
230	Airplane Repair Facility	Maintenance Hangar
240	Test Hangar/Base Ops	Depot Maint. Hangar/Base Ops
4029	Combat Control Center	Combat Control Center

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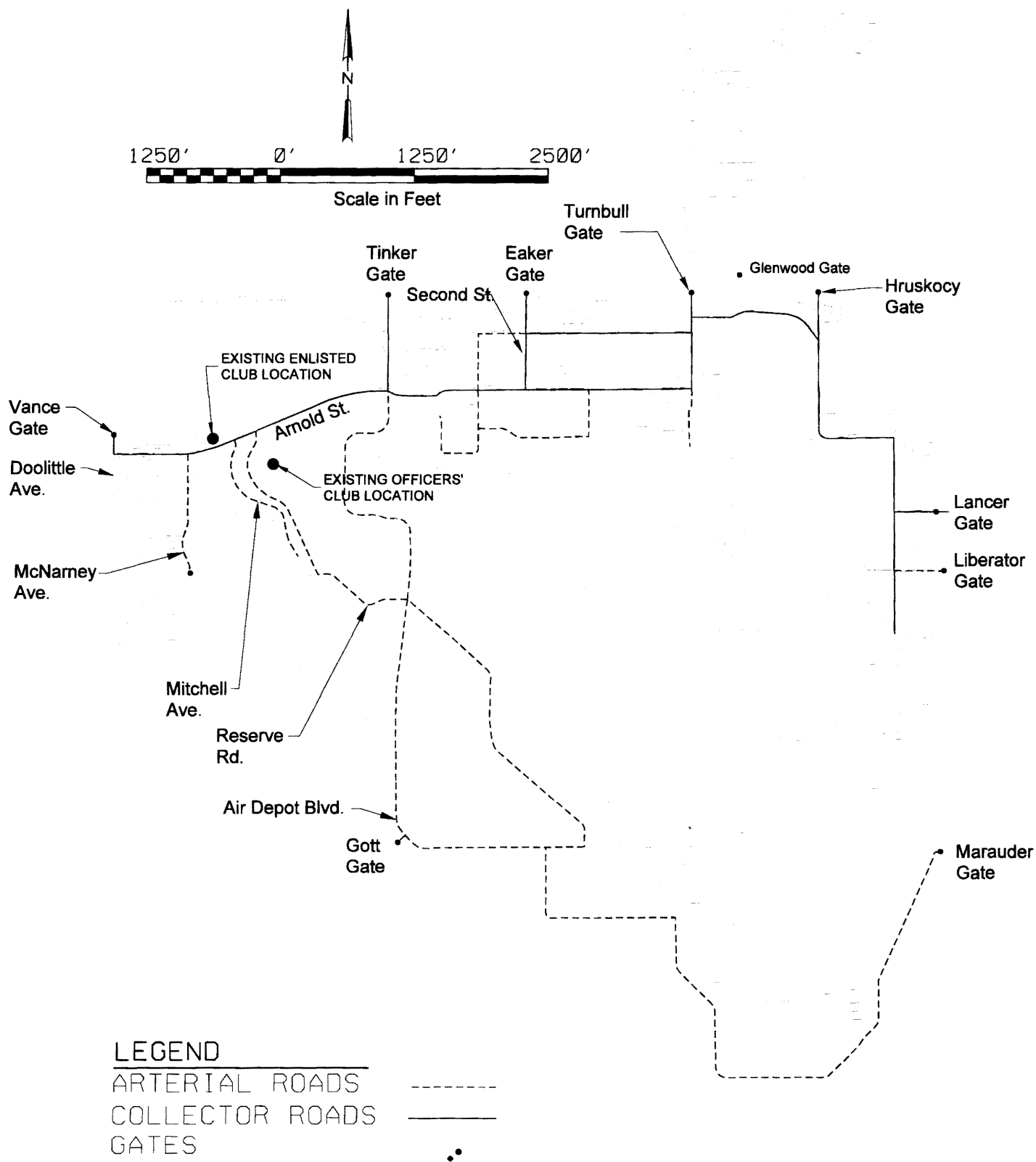


FIGURE 3-10
Internal Transportation Network
Collocated Club EA
Tinker AFB, Oklahoma

A Cultural Resource Management Plan was finalized in September 1999 as the basis for a Programmatic Agreement between Tinker AFB, the Oklahoma SHPO, and the National Advisory Council on Historic Preservation to be executed within 5 years. This agreement addresses various types of maintenance, construction, and demolition activities, along with related compliance requirements.

One hundred thirty-one known archaeological sites are present in areas adjacent to the base. One archaeological site has been identified within the South Forty Development Area. This site was reviewed by the Oklahoma SHPO, and was determined to be ineligible for listing on the National Register of Historic Places (NRHP). In the fall of 2000, an archaeological survey was completed in a 500-acre area located in Section 16 Township 11 North Range 2 West, at the northwestern corner of the base. The archaeological and geomorphological investigations of this study resulted in the identification of two prehistoric sites (340K-166 and 340K-167) and one historical site (340K-157). None of these sites are located within the project area for any of the alternatives. However, the report recommends additional Phase I surveys and/or geomorphological studies for the terraced surfaces along Crutch and Kuhlman Creeks (i.e., between the elevations of 1,195 ft and 1,210 ft) if ground disturbance in these areas is expected to be greater than 20 inches below surface (Stevens and Lorenzini, December 2000).

3.3.15 Airfield Operations

The runways at Tinker AFB are designated as Class B facilities and have specific standards to ensure safety. The standards, outlined in AFI 32-1044 (dated 4 March 1994), prescribe the minimum area required for a number of imaginary surfaces that surround the airfield. The purpose of the imaginary surfaces is to ensure safety and limit incompatible land uses near the airfield. The imaginary surfaces surrounding the runways are the Primary Surface, the Transitional Surface, the Clear Zone Surface, the APZ, and the Approach/Departure Surface. The Clear Zone is the area immediately beyond the end of the runway; this area has a high potential for accidents and has traditionally been acquired by the Government in fee and kept clear of obstructions to flight. The APZ I is the area beyond the clear zone; this area possesses a significant potential for accidents. The APZ II is an area beyond APZ I and has a measurable potential for accidents. According to the DoD 4165.57 AICUZ, eating and drinking establishments are not compatible uses within the Clear Zone, APZ I, or APZ II. Currently, the Officers' Club (building 5603) is located in the Clear Zone, and a portion of the Enlisted Club (building 6001) is located in the APZ I. While Tinker AFB has a waiver that permits operation of these clubs, their presence in these zones is not considered compatible with aircraft operations (DoDI 4167.57).

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4. Environmental Consequences

4.1 Introduction

The primary purpose of an EA prepared in accordance with NEPA is to identify the potential impacts of a major federal action on the environment. The identification of potential impacts in this EA includes consideration of both the context and the degree of the impact. When feasible, distinctions are made between short-term, long-term, negligible, and adverse impacts. A negligible impact may have an inconsequential effect or be unlikely to occur; an adverse impact would have negative consequences. If the current condition of a resource is improved or an undesirable impact is lessened, the impact is considered beneficial. Finally, a “no impact” determination is made when the proposed action does not noticeably affect a given resource. Where appropriate, cumulative impacts are discussed. Cumulative impacts are those that are likely to occur over a long period of time or as a result of combining the expected impacts of two or more unrelated actions.

This section is organized to present the potential environmental consequences to the various project sites. The preferred alternative, two other action alternatives, and the no-action alternative are discussed below. The three action alternatives include the construction of the Collocated Club adjacent to the existing Officers’ Club (building 5603). Prior to construction of the new Collocated Club, the existing Officers’ Club must be demolished. The environmental impacts of the demolition of this structure are addressed in the *Programmatic EA for Demolition Activities at Tinker AFB* (Tinker AFB, 2000a) and are not further discussed here.

4.2 Effects of All Alternatives on Mission Objectives

4.2.1 Preferred Alternative

Construction of the preferred alternative would have a long-term beneficial impact on mission objectives by improving deficiencies and consolidating club activities. The consolidation of the mission activities into one building would provide improved service to personnel through more localized support and the reduction of travel times. The demolition of building 5603 would enhance the mission by eliminating the land use incompatibility between the building and Clear Zone and avoid potential violations of AFH 32-1123 (1). The change of use designation for building 6001, from Enlisted Club to storage/maintenance for the part within APZ I and golf club for the part outside APZ I, would eliminate incompatible uses within APZ I.

4.2.2 Alternative A (Gott Gate)

Construction of alternative A (Gott Gate) would have a long-term beneficial impact on mission objectives by providing additional mission space and consolidation of activities

into one location. The demolition of building 5603 would enhance the mission by eliminating the land use incompatibility between the club and airspace operations and avoid potential violations of AFH 32-1123 (1). Demolition of building 5603 and change of use designation for building 6001 would eliminate incompatible uses within the Clear Zone and APZ I, respectively.

4.2.3 Alternative B (Youth Center)

Construction of alternative B (Youth Center) would have a long-term beneficial impact on mission objectives by providing additional mission space and consolidation of activities into one location. The demolition of building 5603 would enhance the mission by eliminating the land use incompatibility between the club and airspace operations and avoid potential violations of AFH 32-1123 (1). Demolition of building 5603 and change of use designation for building 6001 would eliminate incompatible uses within the Clear Zone and APZ I, respectively.

4.2.4 No-Action Alternative

The no-action alternative could result in negative impacts to mission objectives. Should the operational waiver be rescinded, continued operation of the Officers' Club and Enlisted Club would result in violation of AFH (AFH 32-1123(1). Implementation of the no-action alternative would result in continued incompatible uses (operation of the clubs) within the Clear Zone and APZ I.

4.3 Effects of Alternatives on the Affected Environment

4.3.1 Topography and Soils

Topography

Preferred Alternative

Construction of the preferred alternative within the Community Development Area would require grading and excavation activities during site preparation. The site is located on a hill and appropriate BMPs would be employed during construction activities. Limited fill would be placed to elevate the level of the floor above the 100-year flood elevation but, as this fill would be within the building footprint, it would not constitute a significant change in topography. Construction of the preferred alternative would not significantly alter the existing topography or change overall drainage patterns at the location of the preferred alternative. Therefore, no significant adverse impacts to the area's topography are anticipated.

Alternative A (Gott Gate)

Construction of the Gott Gate alternative would require grading and excavation activities during site preparation. The site is relatively flat. Construction of this alternative would not alter the existing topography or change overall drainage patterns. Therefore, no significant adverse impacts to the area's topography would be anticipated.

Alternative B (Youth Center)

Construction of the Youth Center alternative would require grading and excavation activities during site preparation. The site is located on a hill and appropriate BMPs would be employed during construction activities. Construction of this alternative would not alter the existing topography or change the overall drainage patterns. Therefore, no significant adverse impacts to the area's topography would be anticipated.

No-Action Alternative

Under the no-action alternative, no grading or excavation activities would occur and no impact to area topography would occur.

Soils

Preferred Alternative

Construction of the Collocated Club would require soil disturbance during grading and excavation activities and foundation construction. Underground utilities or existing process lines may need to be removed and relocated during work on the facility additions. Construction activities for the preferred alternative would result in temporary impacts to onsite soils, which have already been heavily disturbed and, in some cases, paved. During soil disturbance activities, the potential exists for small-scale soil loss due to stormwater runoff. Construction contractors would employ accepted construction BMPs consistent with their site-specific Storm Water Pollution Prevention Plan (SWPPP) during construction and soil disturbance activities to contain and minimize soil loss and prevent entry of sediment into surface waters. Impacts to soils are not considered significant because existing soils are already disturbed, construction activities would be temporary, and appropriate BMPs would be utilized.

Alternative A (Gott Gate)

Construction of the Gott Gate alternative would require soil disturbance during grading and excavation activities and foundation construction. Underground utilities or existing process lines may need to be removed and relocated should they be present on the sites. Construction activities for this alternatives would result in temporary impacts to onsite soils, which have been previously disturbed and are heavily maintained grassy areas. During soil disturbance activities, the potential exists for small-scale soil loss due to stormwater runoff. Construction contractors would employ accepted construction BMPs consistent with their site-specific SWPPP during construction and soil disturbance activities to contain and minimize soil loss and prevent entry of sediment into surface waters. Impacts to soils are not considered significant because existing soils are already disturbed, construction activities would be temporary, and appropriate BMPs would be utilized.

Alternative B (Youth Center)

Construction of the Youth Center alternative would require soil disturbance during grading and excavation activities and foundation construction. Underground utilities or existing process lines may need to be removed and relocated should they be present on the site. Construction activities for this alternative would result in temporary impacts to onsite soils, which have already been heavily disturbed and are either paved over or heavily maintained as grassy areas. During soil disturbance activities, the potential exists for small-scale soil loss due to stormwater runoff. Construction contractors would employ accepted construction BMPs consistent with their site-specific SWPPP during

construction and soil disturbance activities to contain and minimize soil loss and prevent entry of sediment into surface waters. Impacts to soils are not considered significant because existing soils are already disturbed, construction activities would be temporary, and appropriate BMPs would be utilized.

No-Action Alternative

Under the no-action alternative, no construction activities would occur; therefore, there would be no impact to soils.

4.3.2 Air Quality

Preferred Alternative

Construction activities would result in short-term localized emissions from construction vehicles and fugitive dust. Various types of construction equipment would be used for clearing, grading, utility installation, and paving. Such impacts are temporary and are not considered significant. BMPs would be used to control fugitive dust, as needed, during construction. Dust control BMPs may include but are not limited to spray misting from water trucks. The new facility may include air compressors and HVAC systems powered by natural gas. Should this equipment be designed for natural gas use, coordination with the Tinker AFB Environmental Management Directorate would occur to ensure that the appropriate permits are obtained.

Alternative A (Gott Gate)

Operational impacts from this alternative would be the same as those described for the preferred alternative. Appropriate BMPs would be utilized and impacts are not considered significant.

Alternative B (Youth Center)

Operational impacts from this alternative would be the same as those described for the preferred alternative. Appropriate BMPs would be utilized and impacts are not considered significant.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to air quality.

4.3.3 Noise

Preferred Alternative

Heavy equipment used for construction would increase noise levels intermittently and could create a temporary nuisance for people living nearby. The impact would be short term and not significant because of its temporary nature. Construction activities are generally restricted to normal working hours at Tinker AFB. Tinker AFB would minimize noise impacts on sensitive receptors by limiting noisy activities to daytime hours and, if complaints are received from neighbors, by employing additional noise control measures. Construction does not involve the addition of new noise sources. As such, no long-term impact to the noise environment would occur. Table 4-1 summarizes

the noise levels generated by heavy equipment typical for highway construction, and which produce noise levels similar to those that would be generated during construction of this project.

Alternative A (Gott Gate)

Operational impacts from this alternative would be the same as those described for the preferred alternative. Because of their temporary nature, these short-term, construction-related impacts are not considered significant.

TABLE 4-1
Estimated Peak Hours of Construction Noise

Construction Phase	Equipment	Noise Level at 25 ft (dBA-Leq)	Noise Level at 50 ft (dBA-Leq)
Clearing and grubbing	Bulldozer, backhoe	95	89
Earthwork	Scraper, bulldozer	97	91
Foundation	Backhoe, loader	94	88
Superstructure	Crane, loader	95	89
Base preparation	Trucks, bulldozer	97	91
Paving	Paver, trucks	98	92

Source: U.S. Department of Transportation. 1977. Highway Construction Noise: Measurement, Prediction, and Mitigation.

Alternative B (Youth Center)

As with the preferred alternative, the Youth Center alternative would result in construction-related noise impacts. However, these impacts would be temporary and of short duration. Tinker AFB would minimize noise impacts on sensitive receptors by limiting noisy activities to daytime hours and, if complaints are received from neighbors, by employing additional noise control measures.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to existing noise levels on-base.

4.3.4 Surface Water and Groundwater

Preferred Alternative

According to the USACE floodplain map (revised 2002)¹, the location for the preferred alternative would be entirely outside the floodway for Crutch Creek. However, approximately one-half of the building would be located within the 100-year floodplain. As there is no constriction of the floodway, construction of the Collocated Club would not decrease flood transport nor increase flood elevation upstream of the proposed project. Encroachment by the proposed addition would be less than 0.1% of the floodplain of Crutch Creek with no encroachment in the floodway. In conjunction with

¹ USACE floodplain map was revised in May 2002. This map has not been formally adopted and is not yet available for reproduction.

other planned development near the Collocated Club and in the Crutch Creek floodplain (addition to the chapel and addition to the religious education building), total encroachment would remain less than 0.1% of the floodplain, which would not significantly impact the floodplain.

Six monitoring wells are located near this site and one monitoring well would need to be relocated prior to construction. A plume consisting primarily of chlorinated solvents is located approximately 20 feet below ground under the existing Officers' Club (building 5603). As a result, additional safety measures would be implemented during construction and installation of utilities. Any excavation or trenching would require a base "dig permit." Coordination with the Tinker AFB Environmental Management Directorate would be conducted in order to avoid or minimize, to the extent possible, excavation into contaminated groundwater.

All construction sites on Tinker AFB must comply with provisions of ODEQ Permit OKR10 which regulates storm water discharges associated with Construction Activities. ODEQ considers Tinker AFB to be a common plan of development where all construction sites are required to comply with the general regulation. Construction contractors are required to obtain coverage under the base wide permit by submitting an approved site-specific SWPPP through Environmental Management. A Notice of Termination (NOT) is required when construction is complete and the site has been stabilized.

Post-construction volume of stormwater would increase slightly from current conditions because the amount of impervious surface would increase. This minor increase, however, is not considered a significant adverse impact. Because construction would comply with existing stormwater design regulations, no long-term impacts to surface waters are anticipated.

Alternative A (Gott Gate)

The Gott Gate alternative is located within the East Crutch Creek watershed and nearby waterbodies include Redbud Pond and Beaver Pond. Additionally, an intermittent stream is located nearby. The Gott Gate alternative site is not located within the floodway or floodplain. No impact to the floodplain would result. As with the preferred alternative, the Gott Gate alternative would have no long-term impact on surface waters because no surface water bodies are located at or near the site. However, stormwater runoff from areas disturbed during construction could increase turbidity, siltation, and sedimentation to receiving streams. BMPs, as presented in *Tinker AFB Stormwater Pollution Prevention Plan*, would be used to minimize impacts. Building construction which disturbs sites consisting of 5 acres or more must comply with the Oklahoma General Permit for stormwater runoff from construction activities. Post-construction volume of stormwater would increase slightly from current conditions because the amount of impervious surface would increase.

Alternative B (Youth Center)

The Youth Center alternative is located within the West Crutch Creek watershed. The Youth Center alternative is outside the floodway for the creek but is within the 100-year floodplain. Therefore, portions of the building would be located within the 100-year

floodplain. As there is no constriction of the floodway, construction of the Collocated Club would not decrease flood transport nor increase flood elevation upstream of the project. Encroachment by the addition would be less than 0.5% of the floodplain of West Crutcho Creek with no encroachment in the floodway. No plumes have been identified underneath or in close proximity to this site. No monitoring wells are located in this area.

As with the preferred alternative, the Youth Center alternative would have no long-term impact on surface waters because no surface water bodies are located at or near the site. However, stormwater runoff from areas disturbed during construction could increase turbidity, siltation, and sedimentation to receiving streams. BMPs, as presented in *Tinker AFB Stormwater Pollution Prevention Plan*, would be used to minimize impacts. Building construction which disturbs sites consisting of 5 acres or more must comply with the Oklahoma General Permit for stormwater runoff from construction activities. Post-construction volume of stormwater would increase slightly from current conditions because the amount of impervious surface would increase.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to surface waters.

4.3.5 Biological Resources

Preferred Alternative

The preferred alternative site is a heavily maintained grassy area. While the preferred alternative is adjacent to Crutcho Creek, the creek has been converted to an open concrete-trapezoidal channel and no critical habitats or wetlands have been identified in this area. As a result, construction of the preferred alternative would have no impact on terrestrial biota or threatened or endangered species. Stormwater runoff would be managed using BMPs, as presented in the *Tinker AFB Stormwater Pollution Prevention Plan*, to minimize adverse effects on aquatic biota.

Alternative A (Gott Gate)

The Gott Gate alternative location is a heavily maintained grassy area. The Texas Horned Lizard, a federal species of concern, is known to be present in this portion of the South Forty Development Area. No impacts to flora and fauna are anticipated, beyond the potential impacts to the Texas Horned Lizard. Construction at this location would be conducted in compliance with applicable threatened and endangered species regulations. Stormwater runoff would be managed using BMPs, as presented in the *Tinker AFB Stormwater Pollution Prevention Plan*, to minimize adverse effects on aquatic biota.

Alternative B (Youth Center)

The Youth Center alternative location is a heavily maintained grassy area. No designated critical habitat exists in this area. No critical habitats or wetlands have been identified in this area.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impacts to biological resources or threatened or endangered species.

4.3.6 Economic Resources**Employment*****Preferred Alternative***

The economic effects of a proposed military action are caused by a change in the demand for goods and services in the local economy. Primary effects are caused by initial changes in expenditures, employment, salaries, and population directly related to the proposed action. Secondary effects are induced by the process of spending and re-spending, and the relationship between what is needed to produce goods and services and the commodities that are produced.

Based on relationships found in the BEA data, it can be estimated that roughly one-third of the total cost of the project would be expended for construction labor. Annual construction wages in Oklahoma averaged \$23,408 in 1995 (BLS, 1997). Based on the estimated value of the construction cost and the duration, the number of full-time equivalent construction jobs to be generated can be determined by dividing the amount to be expended for construction labor by the annual average after adjusting for inflation (assumed to be a constant 3 percent per annum). Implementation of the preferred alternative would not have a significant impact on the total labor force, employment, or unemployment in the Tinker AFB area because the estimated number of jobs generated during construction is less than 1 percent of the total employment at Tinker AFB. In addition, there would be no long-term impact on Tinker AFB employment levels because the preferred alternative does not require additional staff.

Alternative A (Gott Gate)

Implementation of the Gott Gate alternative would increase employment in the same manner as the preferred alternative and would not represent a significant impact. The cost of implementing the Gott Gate alternative would be similar to that of the preferred alternative.

Alternative B (Youth Center)

Implementation of the Youth Center alternative would increase employment in the same manner as the preferred alternative and would not represent a significant impact. The cost of implementing the Youth Center alternative would be similar to that of the preferred alternative.

No-Action Alternative

The no-action alternative would involve continuation of the present conditions with no new construction spending to meet facility deficiencies. As such, no impact to employment would occur under the no-action alternative, because no construction jobs would be generated and there would be no long-term change in employment associated with staff additions.

Income

Preferred Alternative

Because no increase in personnel is part of the preferred alternative, the economic effects of the action would be limited to the temporary effects of construction. Construction employment associated with the preferred alternative would be temporary and minimal, so there would be no appreciable effect on the income generated in the local economy.

Expenditures for construction-related materials and supplies would have a small short-term beneficial effect on the economy of Oklahoma City and the surrounding area. Businesses near Tinker AFB, such as gas stations and fast-food restaurants, generally benefit from additional sales to construction workers.

Alternative A (Gott Gate)

As with the preferred alternative, the Gott Gate alternative would create temporary construction employment and some additional secondary spending throughout the local economy. The magnitude of such spending, however, would be relatively insignificant.

Alternative B (Youth Center)

As with the preferred alternative, the Youth Center alternative would create temporary construction employment and some additional secondary spending throughout the local economy. The magnitude of such spending, however, would be relatively insignificant.

No-Action Alternative

Under the no-action alternative, no construction-related income would be generated and there would be no change to income levels. Therefore, no impact to income would occur under the no-action alternative.

Installation Contribution to the Local Economy

Preferred Alternative

The annual construction costs associated with the preferred alternative are less than 1 percent of Tinker AFB's annual overall impact on the economy, with the associated labor costs also being less than 1 percent of Tinker AFB's total payroll. The total payroll at Tinker AFB would be unaffected by the preferred alternative because the individual components comprising it do not call for an increase or reduction in personnel.

Gott Gate and Youth Center Alternatives

As with the preferred alternative, the other action alternatives would create temporary construction employment and some additional secondary spending throughout the local economy. The magnitude of such spending, however, would be relatively insignificant. Because no new personnel would be added with these alternatives, there would be no impact to total payroll. Some increase in utility expenditures would be expected from these alternatives, although such increases would be insignificant.

No-Action Alternative

Because there would be no construction or employment change under the no-action alternative, there would be no impact to the base's contribution to the economy.

4.3.7 Land Use

Preferred Alternative

The location of the preferred alternative is adjacent to the existing Officers' Club, which is considered a community facility. The land use for this area has been determined to be a community facility in the *General Plan* (Tinker AFB, 2000b). Implementation of the preferred alternative would not result in a change of land use. The relocation of the club outside the Clear Zone would reduce the potential for land use conflicts between community facilities and airspace operations. As such, no impacts or conflicts with existing land use patterns would occur as a result of the preferred alternative.

Alternative A (Gott Gate)

Implementation of the Gott Gate alternative would not conflict with the overall land use plan outlined in the *General Plan* (Tinker AFB, 2000b). Construction of the facility would result in a change of land use for the site of the club. Construction of the facility on this site would result in a negative impact because the location is some distance from similar community facilities and residential areas.

Alternative B (Youth Center)

Implementation of the Youth Center alternative would not conflict with the overall land use plan outlined in the *General Plan* (Tinker AFB, 2000b). However, the construction of this facility is incompatible with the residential and child-oriented adjacent land uses. Additionally, siting of the Collocated Club at this location would likely result in increased traffic from delivery vehicles through the residential neighborhood around this site.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to land use.

4.3.8 Utilities and Solid Waste

Preferred Alternative

Construction of the preferred alternative would have minimal impact on utilities, such as electricity and natural gas used for heating/cooling and lighting, because the construction of the Collocated Club would consolidate the utility demand of two facilities into one combined facility. Because no new personnel or staff would be added, any additional bathrooms would not result in a net addition to potable water use or domestic wastewater generation. Present utility consumption is approximately 60 percent of total capacity, so this minor increased demand can be accommodated easily by the utility capacity of the base and is not considered a significant impact. Construction of the new facility could involve the location, removal, and replacement of existing underground utilities. This would result in temporary localized utility disruptions. Such impacts are not considered significant, however, and would result in overall upgrading of replaced infrastructure.

During construction of utilities, additional safety measures would be implemented to prevent impacts to nearby monitoring wells and contamination from the chlorinated solvent plume. Prior to any excavation or trenching, a base dig permit must be obtained and coordination with the Tinker AFB Environmental Management Directorate would be conducted.

Construction of the preferred alternative would have no effect on solid waste handling, because the proposed facility is to accommodate existing workload levels and would not represent an increase in existing industrial workloads. All solid waste handling would comply with the recycling consent procurement requirements of EO 13101, Section 6002 of RCRA.

Alternative A (Gott Gate)

Impacts to utilities or solid waste handling as a result of construction of the Gott Gate alternative would not be expected to differ significantly from those outlined for the preferred alternative. Because the Gott Gate alternative is located in the South Forty Development Area (an area of known utility deficiencies), localized sewer, water, electrical, and natural gas distribution lines would be examined to determine whether sufficient line capacity exists to accommodate the new facility. During construction of utilities, additional safety measures would be implemented to prevent impacts to nearby monitoring wells and associated connections to the wastewater treatment plant.

Alternative B (Youth Center)

Impacts to utilities or solid waste handling as a result of the construction of the Youth Center alternative would not be expected to differ significantly from those outlined for the preferred alternative. Localized sewer, water, electrical, and natural gas distribution lines would be examined to determine whether sufficient line capacity exists to accommodate the new facility.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used at current utility demand levels, resulting in no impacts to existing utilities or solid waste handling abilities.

4.3.9 Hazardous and Toxic Materials and Waste

Preferred Alternative

The proposed action represents a relocation and consolidation of existing community facility space. No additional hazardous waste would be generated as a result of the preferred alternative, and no additional hazardous materials would be needed.

All of the materials used in connection with the proposed project would be stored, used, and disposed in accordance with the Tinker AFB Spill Prevention Plan, the SARA Title III Response Plan, the SWP3, and other applicable local, state, and federal laws and regulations. Hazardous waste generated through the activities would be handled in accordance with Tinker AFB Instruction 32-7004, Hazardous Waste Management, the

RCRA Operating Permit, OC-ALC Plan 19-2, Tinker AFB Spill Prevention and Emergency Response Plan, and applicable federal, state, and local regulations.

Alternative A (Gott Gate)

Implementation of the Gott Gate alternative would have the same impacts on hazardous waste and materials as those associated with the preferred alternative.

Alternative B (Youth Center)

Implementation of the Youth Center alternative would have the same impacts on hazardous waste and materials as those associated with the preferred alternative.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no additional generation of hazardous materials or waste.

4.3.10 Installation Restoration Program

Preferred Alternative

The proposed location is within IRP Site CG037 and near the Crutcho Creek Site, which is designated as IRP Site OT09. Six monitoring wells are located near this site. One monitoring well (well 2-279B) would need to be relocated prior to construction. Relocation of this monitoring well would be in coordination with the Environmental Management Directorate. Additional safety measures would be implemented during construction and installation of utilities in this area. Implementation of the proposed action would not significantly impact IRP activities and ongoing IRP activities would not impact the operation of the club.

Alternative A (Gott Gate)

The proposed location is within Site CG038, but not near any specific active IRP sites. Approximately 20 monitoring wells are located along the periphery of this site. Almost half of these wells are extraction wells, which include piping to the treatment plant located to the north of this site. No monitoring wells would be impacted by implementation of this alternative. Additional safety measures would be implemented during construction and installation of utilities in this area. Implementation of alternative A would not significantly impact IRP activities and ongoing IRP activities would not impact the operation of the club.

Alternative B (Youth Center)

No IRP sites are located near the site of this alternative; therefore, no impacts to IRP sites are anticipated.

4.3.11 Transportation

Preferred Alternative

The preferred alternative would not result in an increase in personnel assigned to Tinker AFB. Construction of the preferred alternative would result in consolidation of activities,

which would result in an overall decrease in mission-related traffic along the installation road network. As the Collocated Club would be in the same general area as the two existing clubs, no substantial change in general traffic patterns on-base would occur. Construction impacts would result in temporary transportation impacts as roads are closed and realigned to provide better access and parking. The proposed site is maintained as a grassy area, so no loss of parking spaces would occur from the loss of a parking lot. The 150 additional parking spaces would be constructed adjacent to the new building and outside of both the Clear Zone and the designated floodplain.

Alternative A (Gott Gate)

The Gott Gate alternative would have a negative impact on transportation because of the increased distance between similar community services and the residential areas which help to generate customers for the clubs. The location for the Gott Gate alternative is not within walking distance, thereby making this location inaccessible to personnel without cars on-base. As the Collocated Club would be relocated away from the general area of the two existing clubs, a change in general traffic patterns on-base probably would occur. Operation of the facility at the Gott Gate site would increase non-commercial vehicle traffic and congestion on-base. Also, this location would result in additional commercial traffic from delivery trucks not operating in that part of the base at present, which would increase traffic congestion on-base and increase safety risk from traffic and vehicle-pedestrian accidents.

The Gott Gate alternative site is maintained as a grassy area, so no loss of parking spaces would occur from the loss of a parking lot. Additional parking would be incorporated into the design of the building, resulting in a positive impact on parking. This alternative would also result in temporary transportation impacts during construction as described above.

Alternative B (Youth Center)

The Youth Center alternative would result in negative transportation impacts, as the location would result in increased commercial traffic from delivery trucks, which is incompatible with the surrounding residential uses. Increased commercial traffic would increase risk to personal safety in the residential area. As the Collocated Club would be relocated away from general area of the two existing clubs, a change in general traffic patterns on-base probably would occur.

This location would have some beneficial impact because the site is located within walking distance of other community facilities. The Youth Center alternative site is maintained as a grassy area, so no loss of parking spaces would occur from the loss of a parking lot. Additional parking would be incorporated into the design of the building, resulting in a positive impact on parking.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to transportation.

4.3.12 Cultural Resources

Preferred Alternative

The preferred alternative is located within the Community Development Area immediately east of Crutch Creek. In the fall of 2000, an archaeological survey was completed in a 500-acre area located in Section 16 Township 11 North Range 2 West, at the northwestern corner of the base. The archaeological and geomorphological investigations of this study resulted in the identification of two prehistoric sites (340K-166 and 340K-167) and one historical site (340K-157). None of these sites are located within the project area for the preferred alternative. However, the report recommends additional Phase I surveys and/or geomorphological studies for the terraced surfaces along Crutch and Kuhlman Creeks (i.e., between the elevations of 364 m and 369 m (1,195 ft and 1,210 ft) if ground disturbance in these areas is expected to be greater than 20 inches.

If subsurface remains are found during construction activities, Tinker AFB would consult with the SHPO. In addition, no historical structures have been identified in the area. Therefore, no impact to cultural resources would occur as a result of the preferred alternative.

Alternative A (Gott Gate)

The site for the Gott Gate alternative is previously disturbed and maintained grassy area within the South Forty Development Area. The likelihood of encountering subsurface remains at the alternative A site is considered very low, and no impact to archaeological resources would be anticipated. In addition, no historical structures have been identified in the area. Therefore, no impact to cultural resources would be anticipated as a result of implementation of this alternative.

Alternative B (Youth Center)

The site for the Youth Center alternative is located on a hill which is bordered by tributaries and floodplain associated with Crutch Creek. Based on the topographic and hydrologic setting, the State Archaeologist recommends an archaeological field inspection of this site prior to construction in order to identify potentially significant archaeological resources that may exist in the project area. No historical structures have been identified in the area. No impacts to cultural resources are expected, though the archaeological field inspection may identify cultural resource concerns.

No-Action Alternative

Under the no-action alternative, the existing facilities would continue to be used, resulting in no impact to cultural resources.

4.3.13 Airfield Operations

Preferred Alternative

Construction of the preferred alternative is proposed outside of the limits of imaginary surfaces designated for airspace safety. Therefore, the preferred alternative would not negatively impact airspace operations. However, construction of the preferred

alternative would result in the demolition of the Officers' Club (building 5603), an incompatible use within the Clear Zone, which would have a positive impact on airfield operations. The existing Enlisted Club (building 6001), which is located in the APZ I and incompatible with airfield operations, would no longer operate as a club. Future use of building 6001 would be compatible with airfield operations.

Alternative A (Gott Gate)

Implementation of the Gott Gate alternative would have the same impacts on airfield operations as the preferred alternative.

Alternative B (Youth Center)

Implementation of the Youth Center alternative would have the same impacts on airfield operations as the preferred alternative.

No-Action Alternative

The no-action alternative would result in the continued operation of the Officers' Club and Enlisted Club within the Clear Zone and APZ, resulting in continued incompatible uses within these zones. Long-term operation of these facilities could result in negative impacts to airfield operations.

4.3.14 Summary of Potential Mitigation Actions

No long-term significant adverse effects were identified. As a result, no mitigation measures are planned. Temporary erosion and runoff potential during construction would be controlled through the use of accepted construction BMPs, and appropriate BMPs would be employed to control fugitive dust emissions. Increased noise levels during demolition and construction activities would be controlled through scheduling noise-generating activities during business hours and not allowing these activities in the evening or at night. The SHPO would be contacted in accordance with existing Tinker AFB policies if subsurface archaeological remains are discovered during construction.

4.4 Unavoidable Adverse Environmental Effects

No unavoidable adverse environmental effects from the implementation of either the preferred alternative, other action alternatives, or the no-action alternative have been identified through this EA.

4.5 Compatibility with Objectives of Federal, Regional, State, and Local Land Use Plans and Policies

The action alternatives would promote the ability of Tinker AFB tenant organizations to meet stated mission objectives. The preferred alternative and alternative A would result in the construction of a Collocated Club within an already developed area that is compatible with surrounding land uses. Alternative B would place the Collocated Club in an area where it would not be compatible with surrounding land uses. The action

alternatives are compatible with the *General Plan* (Tinker AFB, 2000b) and are not contrary to existing federal, regional, state, or local land use plans or policies.

4.6 Relationship Between the Short-Term Use of the Environment and Long-Term Productivity

The action alternatives would not affect the long-term productivity of the environment; no significant environmental impacts or depletion of natural resources have been identified through this EA, nor are any anticipated through implementation of one of the action alternatives. Completion of one of the action alternatives would allow for tenant organizations to better fulfill mission objectives, leading to greater long-term productivity at the base.

4.7 Irreversible and Irretrievable Commitment of Resources

All actions considered in this EA represent a commitment of fiscal resources during the construction process. No irreversible or irretrievable commitment of natural resources has been identified through this EA.

4.8 Cumulative Environmental Consequences

The CEQ regulations implementing NEPA require agencies to consider the potential for cumulative impacts of the action alternatives. "Cumulative impact" is defined in 40 CFR 1508.7 as "the impact on the environment in which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions... Cumulative impacts can result from individually minor but collectively significant factors taking place over time."

At present, Tinker AFB has three planned projects within the floodplain of Crutcho Creek (religious education building addition, chapel addition, and construction of a Collocated Club). In total, these projects would encroach upon less than 0.1% of the floodplain, which would not constitute a significant cumulative impact to the floodplain. No additional environmental impacts from the action alternatives have been identified through this EA. Therefore, no cumulative impacts to natural environmental resources are anticipated from the interaction of the any of the action alternatives with other projects either on-base or in the region.

5. List of Preparers

5.1 Tinker AFB, Oklahoma

Timothy T. Taylor: EIAP Program Manager and Cultural Resource Program Manager responsible for Cultural Resources and NEPA compliance at Tinker AFB. Mr. Taylor has a B.A. degree in Liberal Studies from Rose State College. He has 6 years of experience working as the Cultural Resource Program Manager and 1 year experience working as the EIAP Program Manager. Other experience includes 3 years of experience working in the Air Quality Program, 4 years working in the Asbestos and Lead-based Paint Program, and 6 years working as a Bio-environmental Engineering Technician in the United States Air Force.

5.2 CH2M HILL

Dr. Howard Saxion: Deputy Program Manager and senior environmental scientist responsible for technical senior review. Dr. Saxion holds Ph.D. and M.S. degrees in environmental sciences from the University of Texas at Dallas, and a B.S. degree in biology from the University of Texas at Arlington. He has more than 20 years of experience in the preparation of NEPA documents, including environmental impact statements, air quality and noise impact assessments, regulatory compliance, and hazardous waste investigations. He is a Qualified Environmental Professional.

Richard Reaves: Environmental scientist responsible for overall project evaluation and document preparation. Dr. Reaves has 9 years of experience in NEPA, permitting, biological inventories, and natural resource assessment. He has a B.S. degree in wildlife ecology and resource management from the University of Wyoming and a Ph.D. in wetland ecology from Purdue University.

Kira Zender, AICP: Project Manager and environmental planner responsible for preparation of this EA. Ms. Zender has over 8 years of experience in land use and environmental planning. She has an M.A. in Urban and Regional Planning from Michigan State University and a B.A. in Urban Studies from New College/University of South Florida.

Ed Griggs: Engineering Technician responsible for CAD technical support and design and development of drawing packages with Microstation and AutoCAD. Mr. Griggs has more than 18 years of experience in the military, domestic, and civil planning services. His experience includes AutoCAD versions 2002, Microstation V8 and GIS Erdas Imagine.

David Dunagan: Publications specialist and technical editor responsible for editing and producing project deliverables. He has more than 24 years of experience in technical editing and document production for a wide range of public and private sector clients. Mr. Dunagan holds an M.A. in English from the University of Florida.

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6. List of Agencies and Persons Consulted or Provided Copies of the EA

- 29 May 2002, CH2M HILL received background information from the following personnel:
 - Tim Taylor/OC-ALC/EMCS
 - Scott Bowen/ OC-ALC/EMPE
 - LouAnna Munkres -72 ABW/CECRP

- 20 June 2002, CH2M HILL staff contacted the Oklahoma Department of Wildlife Conservation, USFWS, and ONHI to solicit comments concerning protected species of the EA.

- 20 June 2002, CH2M HILL staff contacted the Oklahoma SHPO to solicit comments concerning cultural resources for the EA.

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7. Literature Cited

Bureau of Labor Statistics (BLS). 1999. Local Area Unemployment Statistics. Accessed from BLS Selective Access internet site (<http://www.stats.bls.gov/sahome.html>) by D. Reilly/CH2M HILL, June 1999.

Bureau of Economic Analysis (BEA). 1999. Local Area Personal Income and Per Capita Personal Income. Accessed from BEA Regional Accounts Data internet site (<http://www.bea.doc.gov/bea/regional/data.htm>) by D. Reilly/CH2M HILL, June 1999.

Bureau of Economic Analysis (BEA). 1997. Regional Economic Information System 1969-1995 (CD-ROM). U.S. Department of Commerce, Economics and Statistics Administration.

Oklahoma Department of Commerce. 2002. Community Profiles: General Information for Oklahoma City, Del City, and Midwest City. Accessed from ODOC Internet site (<http://www.odoc.state.ok.us>).

Stevens, J. Sanderson and Lorenzini, Michele A. December 2000. Phase I Archaeological Survey, Mapping and Recordation Report Tinker AFB, Oklahoma City, OK.

Tinker AFB. 2000a. *Programmatic EA for Demolition Activities at Tinker AFB*.

Tinker AFB. 2000b. *Tinker AFB General Plan*.

Tinker AFB. July 2000. *Tinker AFB Natural Resources Management Plan*.

Tinker AFB Historic Properties Survey of 93 structures and 1,000 acres located in Township 11 North, Range 2 West Southern Tall Grass Prairie and Cross Timbers Region 5 Oklahoma County, Oklahoma. April 1992. Prepared for Woolpert Consultants Dayton, Ohio, by Klinger and Smith Historic Preservation Associates, P.O. Box 1064, Fayetteville, Arkansas 72702.

Tinker AFB. July 1997. *Tinker AFB Spill Prevention and Emergency Response Plan for Hazardous and Extremely Hazardous Substances*. OC-ALC/EM.

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Agency Correspondence



CH2M HILL
115 Perimeter Center Place NE
Suite 700
Atlanta, GA
30346-1278
Tel 770.604.9095
Fax 770.604.9183

June 20, 2002

171183.A1.01

Ron Suttles
Oklahoma Department of Wildlife Conservation
1801 N. Lincoln Blvd.
Oklahoma City, OK 73105

Subject: Environmental Assessment for Construction of a Co-Located Club in the
Community Development area of Tinker Air Force Base.

Dear Mr. Suttles:

CH2M HILL is currently preparing an Environmental Assessment (EA) for Tinker Air Force Base (AFB) in Oklahoma City. The EA is being prepared for the construction of a new Co-Located Club to incorporate both the Officer's Club and Enlisted Club in one building. The existing clubs are both over 30 years old and need to be replaced. Both clubs are located in the Clear Zone/ Accident Protection Zone of the runway which is a violation of Air Force Handbook, AFH 32-1123 (1). Currently, the clubs operate under a waiver, however, this waiver does not allow any additions or improvements to the structures and may be denied or rescinded at any time .

The proposed project includes the following components:

- Demolition of the existing Officer's Club (Building 5603)
- Construction of a new Co-Located Club (approximately 40,000 square feet) in the open area between the existing Building 5603 of Mitchell Avenue.
- Construction of a parking lot (approximately 500 cars) adjacent to the new Co-Located Club.

Ron Suttles
Page 2
June 20, 2002


A map of the proposed project site and alternatives is enclosed for your review. Please review the attached location map and provide any comments regarding the project. Please direct all letter correspondence to my attention at:

CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

If you require additional information on the project, please contact me at (770) 604-9182, ext. 444. Thank you for accommodating this request.

Sincerely,

CH2M HILL


Kira Zender, AICP
Project Manager

ATL\Tinker ODWC Club.doc
Enc\ Location map

WILDLIFE CONSERVATION COMMISSION

Lewis Stiles CHAIRMAN	John S. "Jack" Zink MEMBER
Mac Maguire VICE CHAIRMAN	Harland Stonecipher MEMBER
Douglas Schones SECRETARY	Bruce Mabrey MEMBER
John D. Groendyke MEMBER	Bill Phelps MEMBER



FRANK KEATING, GOVERNOR

GREG D. DUFFY, DIRECTOR

DEPARTMENT OF WILDLIFE CONSERVATION

1801 N. Lincoln

P.O. Box 53465

Oklahoma City, OK 73152

PH. 521-3851

December 19, 2002

Kira Zender
CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

Dear Ms. Zender,

This responds to your letter of June 20, 2002 requesting information regarding the possible presence of state threatened or endangered species as well as any environmental impact for the following:

Project: Co-Located Club in the Community Development area of Tinker AFB

Location: Tinker Air Force Base, Oklahoma County, Oklahoma

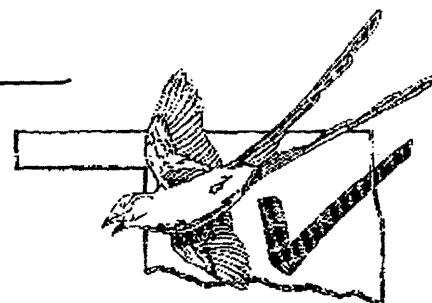
Please understand that due to time and personnel constraints this Department has not conducted an actual field survey of the proposed site. Therefore, we are unable to provide site-specific information. We have reviewed the information provided for this project against our current records of state endangered and threatened species. Our records are compatible with the Oklahoma Natural Heritage Inventory and it appears that no state listed species would be affected.

Please be sure to contact the US Fish and Wildlife Service's Tulsa office (918-581-7458) to determine if any federally-listed species will be affected. For additional information concerning sensitive species, we recommend that you contact the Oklahoma Natural Heritage Inventory, 111 East Chesapeake, Norman, Oklahoma 73019.

Thank you for the opportunity to comment. If we can be of further assistance, please contact our Natural Resources Section at 405-521-4616.

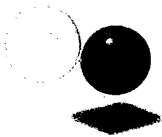
Sincerely,

Thomas Heuer
Natural Resources Biologist



Search for the Scissortail
on Your State Tax Form

2-14-02-1-0840



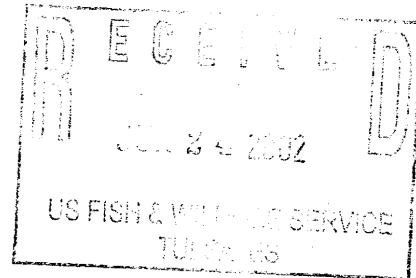
CH2MHILL

CH2M HILL
115 Perimeter Center Place NE
Suite 700
Atlanta, GA
30346-1278
Tel 770.604.9095
Fax 770.604.9183

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June 20, 2002

171183.A1.01



Ken Frazier
Ecological Services
U.S. Fish and Wildlife Service
222 South Houston, Suite A
Tulsa, OK 74127-8909

Subject: Environmental Assessment for Construction of a Co-Located Club in the
Community Development area of Tinker Air Force Base.

Dear Mr. Frazier:

CH2M HILL is currently preparing an Environmental Assessment (EA) for Tinker Air Force Base (AFB) in Oklahoma City. The EA is being prepared for the construction of a new Co-Located Club to incorporate both the Officer's Club and Enlisted Club in one building. The existing clubs are both over 30 years old and need to be replaced. Both clubs are located in the Clear Zone/Accident Protection Zone of the runway which is a violation of Air Force Handbook, AFH 32-1123 (1). Currently, the clubs operate under a waiver, however, this waiver does not allow any additions or improvements to the structures and may be denied or rescinded at any time.

The proposed project includes the following components:

- Demolition of the existing Officer's Club (Building 5603)
- Construction of a new Co-Located Club (approximately 40,000 square feet) in the open area between the existing Building 5603 and Mitchell Avenue.
- Construction of a parking lot (approximately 500 cars) adjacent to the new Co-Located Club.

NO EFFECT FINDING

The proposed action will have no effect on listed species,
or other important wildlife resources.

Date 07/10/2002

Project # 02-14-02-1-0840

Approved by [Signature]

U.S. FISH and WILDLIFE SERVICE, TULSA, OK

U.S. FISH and WILDLIFE SERVICE, TULSA, OK

Approved by _____

Construction # _____

Date _____

The proposed action will have no effect on listed species,
or other important wildlife resources.

NO EFFECT FINDING



CH2MHILL

CH2M HILL
115 Perimeter Center Place NE
Suite 700
Atlanta, GA
30346-1278
Tel 770.604.9095
Fax 770.604.9183

June 20, 2002

171183.A1.01

Ian Butler
Oklahoma Natural Heritage Inventory Program
111 East Chesapeake Street
Norman, Oklahoma 73019-0575

Subject: Environmental Assessment for Construction of a Co-Located Club in the
Community Development area of Tinker Air Force Base.

Dear Mr. Butler:

CH2M HILL is currently preparing an Environmental Assessment (EA) for Tinker Air Force Base (AFB) in Oklahoma City. The EA is being prepared for the construction of a new Co-Located Club to incorporate both the Officer's Club and Enlisted Club in one building. The existing clubs are both over 30 years old and need to be replaced. Both clubs are located in the Clear Zone/Accident Protection Zone of the runway which is a violation of Air Force Handbook, AFH 32-1123 (1). Currently, the clubs operate under a waiver, however, this waiver does not allow any additions or improvements to the structures and may be denied or rescinded at any time.

The proposed project includes the following components:

- Demolition of the existing Officer's Club (Building 5603)
- Construction of a new Co-Located Club (approximately 40,000 square feet) in the open area between the existing Building 5603 and Mitchell Avenue.
- Construction of a parking lot (approximately 500 cars) adjacent to the new Co-Located Club.

Ian Butler
Page 2
June 20, 2002


A map of the proposed project site and alternatives is enclosed for your review. Please review the attached location map and provide any comments regarding the project. Please direct all letter correspondence to my attention at:

CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

If you require additional information on the project, please contact me at (770) 604-9182, ext. 444. Thank you for accommodating this request.

Sincerely,

CH2M HILL


Kira Zender, AICP
Project Manager

ATL\Tinker NatHert Club.doc
Enc\ Location map



Oklahoma
Natural Heritage Inventory

OKLAHOMA BIOLOGICAL SURVEY
111 E. Chesapeake Street
Norman, Oklahoma 73019-0575, USA
(405) 325-1985
FAX: (405) 325-7702

Kira Zender
CH2M Hill
115 Perimeter Center Place N.E.
Suite 700
Atlanta, GA 30346-1278

Monday, June 24, 2002

OBS Ref.: 2002-240-BUS-ZEN

Re: Co-located Club near Tinker Air Force Base

Dear Ms. Zender,

This letter is in response to your request for information on the presence of endangered species or other elements of biological significance at the referenced site. We have reviewed the information currently in the Natural Heritage Inventory database and have found no records of elements at the location you describe.

Because the database is only as complete as the information that has been collected, we cannot say with certainty whether or not a given site harbors rare species or ecological communities. In addition, the Oklahoma Biological Survey has no regulatory authority for endangered species and cannot say whether a project is or is not compliant with state or federal laws. Endangered species regulatory authorities in Oklahoma are the U.S. Fish and Wildlife Service office in Tulsa (918-581-7458) and the Oklahoma Department of Wildlife Conservation in Oklahoma City (405-521-4619). These offices also may have site specific information of which we are unaware.

Sincerely,

for Ian Butler
Biological Data Coordinator



CH2MHILL

CH2M HILL

115 Perimeter Center Place NE

Suite 700

Atlanta, GA

30346-1278

Tel 770.604.9095

Fax 770.604.9183

June 20, 2002

171183.A1.01

Robert Brooks
State Archaeologist
Oklahoma Archaeological Survey
University of Oklahoma
111 East Chesapeake
Room 102
Norman, OK 73019-5111

Subject: Environmental Assessment for Construction of a Co-Located Club in the
Community Development area of Tinker Air Force Base.

Dear Mr. Brooks:

CH2M HILL is currently preparing an Environmental Assessment (EA) for Tinker Air Force Base (AFB) in Oklahoma City. The EA is being prepared for the construction of a new Co-Located Club to incorporate both the Officer's Club and Enlisted Club in one building. The existing clubs are both over 30 years old and need to be replaced. Both clubs are located in the Clear Zone/Accident Protection Zone of the runway which is a violation of Air Force Handbook, AFH 32-1123 (1). Currently, the clubs operate under a waiver, however, this waiver does not allow any additions or improvements to the structures and may be denied or rescinded at any time.

The proposed project includes the following components:

- Demolition of the existing Officer's Club (Building 5603)
- Construction of a new Co-Located Club (approximately 40,000 square feet) in the open area between the existing Building 5603 and east of Mitchell Avenue.
- Construction of a parking lot (approximately 500 cars) and access road adjacent to the new Co-Located Club.

Robert Brooks
Page 2
June 20, 2002

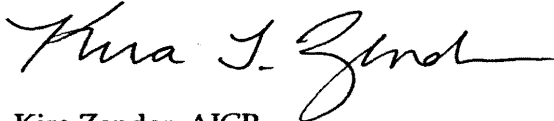
A map of the proposed project site and alternatives is enclosed for your review. Please review the attached location map and provide any comments regarding the project. Please direct all letter correspondence to my attention at:

CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

If you require additional information on the project, please contact me at (770) 604-9182, ext. 444. Thank you for accommodating this request.

Sincerely,

CH2M HILL



Kira Zender, AICP
Project Manager

ATL\Tinker Arch Club.doc
Enc\ Location map



Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

July 3, 2002

Kira Zender
CH2M Hill
115 Perimeter Center Place NE
Suite 700
Atlanta, GA 30346-1278

RE: CH2M Hill for Tinker Air Force Base proposed construction of a Co-Located Club in the Community Development area of Tinker Air Force Base. Legal Description of Proposed Site and Alternative Sites: 1. Co-Located Club: S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Se $\frac{1}{4}$ Section 18; 2. Youth Center Alternative: NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 18; 3. Gott Gate Alternative: Center of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 22 T11N R2W, IM, Oklahoma County, Oklahoma.

Dear Ms. Zender:

The above referenced project has been reviewed by the Community Assistance Program staff of this agency to identify areas that may potentially contain prehistoric or historic archeological materials (historic properties). The location of your project has been cross-checked with the state site files containing approximately 17,500 archaeological sites, which are currently recorded for the state of Oklahoma. **No sites are listed in your project area, but based on the topographic and hydrologic setting of your project, archeological materials are likely to be encountered. An archaeological field inspection is considered necessary prior to project construction in order to identify significant archaeological resources that may exist in the project area. Please contact this office at (405)325-7211 if you require additional information on this project.**

Note: An archaeological survey is required for Alternative #2 Youth Center Site only.

This environmental review and evaluation is performed in order to locate, record, and preserve Oklahoma's prehistoric and historic cultural heritage in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. In addition to our review comments, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups to identify any concerns they may have pertaining to this undertaking and potential impacts to properties of traditional and/or ceremonial value. Thank you for your cooperation.

Sincerely,

Natalie Neustaedter

for
Natalie Neustaedter
Staff Archaeologist

Robert L. Brooks

Robert L. Brooks
State Archaeologist

ls
cc: SHPO



CH2MHILL

CH2M HILL

115 Perimeter Center Place NE

Suite 700

Atlanta, GA

30346-1278

Tel 770.604.9095

Fax 770.604.9183

June 20, 2002

171183.A1.01

Melvena Heisch
State Historic Preservation Office
2704 Villa Prom, Shepherd Mall
Oklahoma City, OK 73107

Subject: Environmental Assessment for Construction of a Co-Located Club in the
Community Development area of Tinker Air Force Base.

Dear Ms. Heisch:

CH2M HILL is currently preparing an Environmental Assessment (EA) for Tinker Air Force Base (AFB) in Oklahoma City. The EA is being prepared for the construction of a new Co-Located Club to incorporate both the Officer's Club and Enlisted Club in one building. The existing clubs are both over 30 years old and need to be replaced. Both clubs are located in the Clear Zone/Accident Protection Zone of the runway which is a violation of Air Force Handbook, AFH 32-1123 (1). Currently, the clubs operate under a waiver, however, this waiver does not allow any additions or improvements to the structures and may be denied or rescinded at any time.

The proposed project includes the following components:

- Demolition of the existing Officer's Club (Building 5603)
- Construction of a new Co-Located Club (approximately 40,000 square feet) in the open area between the existing Building 5603 and Mitchell Avenue.
- Construction of a parking lot (approximately 500 cars) adjacent to the new Co-Located Club.

Melvena Heisch
Page 2
June 20, 2002

A map of the proposed project site and alternatives is enclosed for your review. Please review the attached location map and provide any comments regarding the project. Please direct all letter correspondence to my attention at:

CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

If you require additional information on the project, please contact me at (770) 604-9182, ext. 444. Thank you for accommodating this request.

Sincerely,

CH2M HILL


Kira Zender, AICP
Project Manager

ATL\Tinker SHPO Club.doc
Enc\ Location map



Oklahoma Historical Society

Founded May 27, 1893

State Historic Preservation Office • 2704 Villa Prom • Shepherd Mall • Oklahoma City, OK 73107-2441
Telephone 405/521-6249 • Fax 405/947-2918

July 15, 2002

Ms. Kira Zender, Project Manager
CH2M HILL
115 Perimeter Center Place NE, Ste. #700
Atlanta, GA 30346-1278

RE: File #1968-02; Tinker AFB Project, Demolition of Building #5603,
Construction of New Colocated Club, Oklahoma County

Dear Ms. Zender:

We have received the documentation submitted concerning the above referenced project in Oklahoma County.

We are unable to process your request for review at this time and ask that you supply a completed Historic Preservation Resource Identification Form and appropriate photographs for each of the structures to be affected by the project.

NOTE: If these properties are less than 45 years old, Historic Preservation Resource Identification Forms and photos are not required. However, your review request must include the address and date (or year) of construction of each property.

If these properties are 45 years old or older, and you have not received Historic Preservation Resource Identification Forms and the Review and Compliance Manual, please call or write to request these from our office.

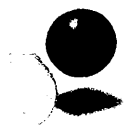
If you have any questions regarding this request, you may reach me at 405/522-4478. Your response must reference the above underlined file number. Thank you.

Sincerely,

Jim Gabbert/pm

Jim Gabbert
Architectural Historian

JG:pm



CH2MHILL

CH2M HILL

115 Perimeter Center Place NE

Suite 700

Atlanta, GA

30346-1278

Tel 770.604.9095

Fax 770.604.9183

August 10, 2002

171183.A1.01

Jim Gabbert
Architectural Historian
State Historic Preservation Office
2704 Villa Prom, Shepherd Mall
Oklahoma City, OK 73107

Subject: Response to File #1968-02, letter dated July 15, 2002

Dear Mr. Gabbert:

Tinker Air Force Base is preparing an EA on the construction of a new Collocated Club to incorporate both the Officer's Club and Enlisted Club in one building. Your office requested information on the existing Officer's Club (Building 5603). Building 5603 was constructed in 1977. A map with the location of Building 5603 is enclosed for your review.

According to your letter of 15 July 2002, no photographs or historic resources documentation are required from Building 5603 due to its construction in 1977. To demonstrate that there will be no impacts to historic properties from the proposed project, we request a letter of verification of the above for inclusion in the NEPA documentation. Please direct all letter correspondence to my attention at:

CH2M HILL
115 Perimeter Center Place, NE, Ste. 700
Atlanta, GA 30346

If you require additional information on the project, please contact me at (770) 604-9182, ext. 270. Thank you for accommodating this request.

Sincerely,
CH2M HILL

Rich Reaves
Environmental Scientist

ATL\Tinker SHPO Club2.doc
Enc\ Location map



Oklahoma Historical Society

Founded May 27, 1893

State Historic Preservation Office #2704 Villa Prom #Shepherd Mall #Oklahoma City, OK 73107-2441

Telephone 405/521-6249 #Fax 405/947-2918

August 30, 2002

Mr. Rich Reaves, Environmental Scientist
CH2M HILL
115 Perimeter Center Place NE, Ste. #700
Atlanta, GA 30346-1278

RE: File #1968-02; Tinker AFB Project, Demolition of Building #5603,
Construction of New Colocated Club

Dear Mr. Reaves:

We have received and reviewed the documentation concerning the referenced project in Oklahoma County. Additionally, we have examined the information contained in the Oklahoma Landmarks Inventory (OLI) files and other materials on historic resources available in our office. We find that there are no historic properties affected by the referenced project.

Thank you for the opportunity to comment on this project. We look forward to working with you in the future.

If you have any questions, please contact Charles Wallis, RPA, Historical Archaeologist, at 405/521-6381.

Should further correspondence pertaining to this project be necessary, the above underlined file number must be referenced. Thank you.

Sincerely,

Melvna Heisch
Deputy State Historic
Preservation Officer

MH:pm